Cisco ASA Series Command Reference

ASA 5505, ASA 5510, ASA 5520, ASA 5540, ASA 5550, ASA 5512-X, ASA 5515-X, ASA 5525-X, ASA 5545-X, ASA 5555-X, ASA 5580, ASA 5585-X, and the ASA Services Module

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Cisco ASA Series Command Reference

About This Guide

This preface includes the following sections:

Document Objectives

This guide contains the commands available for use with the ASA to protect your network from unauthorized use and to establish Virtual Private Networks (VPNs) to connect remote sites and users to your network.

You can also configure and monitor the ASA by using ASDM, a web-based GUI application. ASDM includes configuration wizards to guide you through some common configuration scenarios, and online Help for less common scenarios.

This guide applies to the Cisco ASA series. Throughout this guide, the term “ASA” applies generically to all supported models, unless specified otherwise.

Audience

This guide is for network managers who perform any of the following tasks:

- Manage network security
- Install and configure firewall/security appliances
- Configure VPNs
- Configure intrusion detection software

Use this guide with the CLI configuration guide.

Document Organization

- "Using the Command-Line Interface" introduces you to the ASA commands and access modes.
- Each chapter lists all commands in alphabetical order.
- "Cisco IOS Commands for the ASASM" lists the Cisco IOS commands that are used with the ASASM.

Document Conventions

The ASA command syntax descriptions use the following conventions:

Command descriptions use these conventions:

- Braces ({ }) indicate a required choice.
- Square brackets ([ ]) indicate optional elements.
- Vertical bars (|) separate alternative, mutually exclusive elements.
- **Boldface** indicates commands and keywords that are entered literally as shown.
- *Italics* indicate arguments for which you supply values.

Examples use these conventions:

- Examples depict screen displays and the command line in `screen` font.
- Information you need to enter in examples is shown in **`boldface screen`** font.
- Variables for which you must supply a value are shown in *`italic screen`* font.
- Examples might include output from different platforms; for example, you might not recognize an interface type in an example because it is not available on your platform. Differences should be minor.

Note Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the manual.

Caution Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.

Tip Means *reader take notice*. Tips include a useful hint or idea that may help you with an issue.

For information on modes, prompts, and syntax, see Using the Command-Line Interface.

Related Documentation

For more information, see *Navigating the Cisco ASA 5500 Series Documentation* at http://www.cisco.com/en/US/docs/security/asa/roadmap/asaroadmap.html

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, using the Cisco Bug Search Tool (BST), submitting a service request, and gathering additional information, see *What's New in Cisco Product Documentation* at: http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html.

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Using the Command-Line Interface

This appendix describes how to use the CLI on the ASA and includes the following sections:

Note The CLI uses similar syntax and other conventions to the Cisco IOS CLI, but the ASA operating system is not a version of Cisco IOS software. Do not assume that a Cisco IOS CLI command works with or has the same function on the ASA.

Firewall Mode and Security Context Mode

The ASA runs in a combination of the following modes:

- Transparent firewall or routed firewall mode

  The firewall mode determines if the ASA runs as a Layer 2 or Layer 3 firewall.

- Multiple context or single context mode

  The security context mode determines if the ASA runs as a single device or as multiple security contexts, which act like virtual devices.

Some commands are only available in certain modes.

Command Modes and Prompts

The ASA CLI includes command modes. Some commands can only be entered in certain modes. For example, to enter commands that show sensitive information, you need to enter a password and enter a more privileged mode. Then, to ensure that configuration changes are not entered accidentally, you have to enter a configuration mode. All lower commands can be entered in higher modes, for example, you can enter a privileged EXEC command in global configuration mode.

Note The various types of prompts are all default prompts and when configured, they can be different.

- When you are in the system configuration or in single context mode, the prompt begins with the hostname:

  ```
  hostname
  ```

- When printing the prompt string, the prompt configuration is parsed and the configured keyword values are printed in the order in which you have set the **prompt** command. The keyword arguments can be any of the following and in any order: hostname, domain, context, priority, state.

  ```
  asa(config)# prompt hostname context priority state
  ```

- When you are within a context, the prompt begins with the hostname followed by the context name:

  ```
  hostname/context
  ```

The prompt changes depending on the access mode:

- User EXEC mode

  User EXEC mode lets you see minimum ASA settings. The user EXEC mode prompt appears as follows when you first access the ASA:

  ```
  hostname>

  hostname/context>
  ```

- Privileged EXEC mode

  Privileged EXEC mode lets you see all current settings up to your privilege level. Any user EXEC mode command will work in privileged EXEC mode. Enter the **enable** command in user EXEC mode, which requires a password, to start privileged EXEC mode. The prompt includes the number sign (#):

  ```
  hostname#

  hostname/context#
  ```

- Global configuration mode

  Global configuration mode lets you change the ASA configuration. All user EXEC, privileged EXEC, and global configuration commands are available in this mode. Enter the **configure terminal** command in privileged EXEC mode to start global configuration mode. The prompt changes to the following:

  ```
  hostname(config)#

  hostname/context(config)#
  ```

- Command-specific configuration modes

From global configuration mode, some commands enter a command-specific configuration mode. All user EXEC, privileged EXEC, global configuration, and command-specific configuration commands are available in this mode. For example, the **interface** command enters interface configuration mode. The prompt changes to the following:

```
hostname(config-if)#

hostname/context(config-if)#
```

Syntax Formatting

Command syntax descriptions use the conventions listed in Table i-1.

Table i-1 Syntax Conventions

Convention	Description
bold	Bold text indicates commands and keywords that you enter literally as shown.
italics	Italic text indicates arguments for which you supply values.
[x]	Square brackets enclose an optional element (keyword or argument).
|	A vertical bar indicates a choice within an optional or required set of keywords or arguments.
[x | y]	Square brackets enclosing keywords or arguments separated by a vertical bar indicate an optional choice.
{x | y}	Braces enclosing keywords or arguments separated by a vertical bar indicate a required choice.
[x {y | z}]	Nested sets of square brackets or braces indicate optional or required choices within optional or required elements. Braces and a vertical bar within square brackets indicate a required choice within an optional element.

Abbreviating Commands

You can abbreviate most commands down to the fewest unique characters for a command; for example, you can enter **wr t** to view the configuration instead of entering the full command **write terminal**, or you can enter **en** to start privileged mode and **conf t** to start configuration mode. In addition, you can enter **0** to represent **0.0.0.0**.

Command-Line Editing

The ASA uses the same command-line editing conventions as Cisco IOS software. You can view all previously entered commands with the **show history** command or individually with the up arrow or **^p** command. Once you have examined a previously entered command, you can move forward in the list with the down arrow or **^n** command. When you reach a command you wish to reuse, you can edit it or press the **Enter** key to start it. You can also delete the word to the left of the cursor with **^w**, or erase the line with **^u**.

The ASA permits up to 512 characters in a command; additional characters are ignored.

Command Completion

To complete a command or keyword after entering a partial string, press the **Tab** key. The ASA only completes the command or keyword if the partial string matches only one command or keyword. For example, if you enter **s** and press the **Tab** key, the ASA does not complete the command because it matches more than one command. However, if you enter **dis**, the **Tab** key completes the **disable** command.

Command Help

Help information is available from the command line by entering the following commands:

- **help** *command_name*

  Shows help for the specific command.

- *command_name* **?**

  Shows a list of arguments available.

- *string***?** (no space)

  Lists the possible commands that start with the string.

- **?** and **+?**

  Lists all commands available. If you enter **?**, the ASA shows only commands available for the current mode. To show all commands available, including those for lower modes, enter **+?**.

Note If you want to include a question mark (?) in a command string, you must press **Ctrl-V** before typing the question mark so that you do not inadvertently invoke CLI help.

Viewing the Running Configuration

To view the running configuration, use one of the following commands.

To filter the command output, see the "Filtering show and more Command Output" section on page xi.

Command	Purpose
show running-config [**all**] [*command*]	Shows the running configuration. If you specify **all**, then all default settings are shown as well. If you specify a *command*, then the output only includes related commands. **Note** Many passwords are shown as *****. To view the passwords in plain text, or in encrypted form if you have a master passphrase enabled (see the "Configuring the Master Passphrase" section on page 12-8), use the **more** command below.
more system:running-config	Shows the running configuration. Passwords are shown in plain text or in encrypted form if you have a master passphrase enabled (see the "Configuring the Master Passphrase" section on page 12-8).

Filtering show and more Command Output

You can use the vertical bar (|) with any **show** command and include a filter option and filtering expression. The filtering is performed by matching each output line with a regular expression, similar to Cisco IOS software. By selecting different filter options you can include or exclude all output that matches the expression. You can also display all output beginning with the line that matches the expression.

The syntax for using filtering options with the **show** command is as follows:

```
hostname# show command | {include | exclude | begin | grep [-v]} regexp
```

or

```
hostname# more system:running-config | {include | exclude | begin | grep [-v]} regexp
```

Note The **more** command can view the contents of any file, not just the running configuration; see the command reference guide for more information.

In this command string, the first vertical bar (|) is the operator and must be included in the command. This operator directs the output of the **show** command to the filter. In the syntax diagram, the other vertical bars (|) indicate alternative options and are not part of the command.

The **include** option includes all output lines that match the regular expression. The **grep** option without **-v** has the same effect. The **exclude** option excludes all output lines that match the regular expression. The **grep** option with **-v** has the same effect. The **begin** option shows all the output lines starting with the line that matches the regular expression.

Replace *regexp* with any Cisco IOS regular expression. The regular expression is not enclosed in quotes or double-quotes, so be careful with trailing white spaces, which will be taken as part of the regular expression.

When creating regular expressions, you can use any letter or number that you want to match. In addition, certain keyboard characters called *metacharacters* have special meaning when used in regular expressions.

Use **Ctrl+V** to escape all of the special characters in the CLI, such as a question mark (?) or a tab. For example, type **d[Ctrl+V]?g** to enter **d?g** in the configuration.

For a list of metacharacters, see Table 15-1 on page 15-15.

Command Output Paging

For commands such as **help** or **?**, **show**, **show xlate**, or other commands that provide long listings, you can determine if the information displays a screen and pauses, or lets the command run to completion. The **pager** command lets you choose the number of lines to display before the More prompt appears.

When paging is enabled, the following prompt appears:

```
<--- More --->
```

The More prompt uses syntax similar to the UNIX **more** command:

- To view another screen, press the **Space** bar.
- To view the next line, press the **Enter** key.
- To return to the command line, press the **q** key.

Adding Comments

You can precede a line with a colon (:) to create a comment. However, the comment only appears in the command history buffer and not in the configuration. Therefore, you can view the comment with the **show history** command or by pressing an arrow key to retrieve a previous command, but because the comment is not in the configuration, the **write terminal** command does not display it.

Text Configuration Files

This section describes how to format a text configuration file that you can download to the ASA, and includes the following topics:

How Commands Correspond with Lines in the Text File

The text configuration file includes lines that correspond with the commands described in this guide.

In examples, commands are preceded by a CLI prompt. The prompt in the following example is "hostname(config)#":

```
hostname(config)# context a
```

In the text configuration file you are not prompted to enter commands, so the prompt is omitted:

```
context a
```

Command-Specific Configuration Mode Commands

Command-specific configuration mode commands appear indented under the main command when entered at the command line. Your text file lines do not need to be indented, as long as the commands appear directly following the main command. For example, the following unindented text is read the same as indented text:

```
interface gigabitethernet0/0
nameif inside
interface gigabitethernet0/1
    nameif outside
```

Automatic Text Entries

When you download a configuration to the ASA, it inserts some lines automatically. For example, the ASA inserts lines for default settings or for the time the configuration was modified. You do not need to enter these automatic entries when you create your text file.

Line Order

For the most part, commands can be in any order in the file. However, some lines, such as ACEs, are processed in the order they appear, and the order can affect the function of the access list. Other commands might also have order requirements. For example, you must enter the **nameif** command for an interface first because many subsequent commands use the name of the interface. Also, commands in a command-specific configuration mode must directly follow the main command.

Commands Not Included in the Text Configuration

Some commands do not insert lines in the configuration. For example, a runtime command such as **show running-config** does not have a corresponding line in the text file.

Passwords

The login, enable, and user passwords are automatically encrypted before they are stored in the configuration. For example, the encrypted form of the password “cisco” might look like jMorNbK0514fadBh. You can copy the configuration passwords to another ASA in its encrypted form, but you cannot unencrypt the passwords yourself.

If you enter an unencrypted password in a text file, the ASA does not automatically encrypt it when you copy the configuration to the ASA. The ASA only encrypts it when you save the running configuration from the command line using the **copy running-config startup-config** or **write memory** command.

Multiple Security Context Files

For multiple security contexts, the entire configuration consists of the following multiple parts:

- The security context configurations
- The system configuration, which identifies basic settings for the ASA, including a list of contexts
- The admin context, which provides network interfaces for the system configuration

  The system configuration does not include any interfaces or network settings for itself. Rather, when the system needs to access network resources (such as downloading the contexts from the server), it uses a context that is designated as the admin context.

Each context is similar to a single context mode configuration. The system configuration differs from a context configuration in that the system configuration includes system-only commands (such as a list of all contexts) while other typical commands are not present (such as many interface parameters).

Supported Character Sets

The ASA CLI currently supports UTF-8 encoding only. UTF-8 is the particular encoding scheme for Unicode symbols, and has been designed to be compatible with an ASCII subset of symbols. ASCII characters are represented in UTF-8 as one-byte characters. All other characters are represented in UTF-8 as multibyte symbols.

The ASCII printable characters (0x20 to 0x7e) are fully supported. The printable ASCII characters are the same as ISO 8859-1. UTF-8 is a superset of ISO 8859-1, so the first 256 characters (0-255) are the same as ISO 8859-1. The ASA CLI supports up to 255 characters (multibyte characters) of ISO 8859-1.

aaa accounting command through accounting-server-group Commands

aaa accounting command

To send accounting messages to the TACACS+ accounting server when you enter any command other than **show** commands at the CLI, use the **aaa accounting command** command in global configuration mode. To disable support for command accounting, use the **no** form of this command.

aaa accounting command [**privilege** *level*] *tacacs+-server-tag*

no aaa accounting command [**privilege** *level*] *tacacs+-server-tag*

Syntax Description

privilege *level*	If you customize the command privilege level using the **privilege** command, you can limit which commands the ASA accounts for by specifying a minimum privilege level. The ASA does not account for commands that are below the minimum privilege level. **Note** If you enter a deprecated command and enabled the **privilege** keyword, then the ASA does not send accounting information for the deprecated command. If you want to account for deprecated commands, be sure to disable the **privilege** keyword. Many deprecated commands are still accepted at the CLI, and are often converted into the currently accepted command at the CLI; they are not included in CLI help or this guide.
tacacs+-server-tag	Specifies the server or group of TACACS+ servers to which accounting records are sent, as specified by the **aaa-server protocol** command.

Defaults

The default privilege level is 0.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

When you configure the **aaa accounting command** command, each command other than **show** commands entered by an administrator is recorded and sent to the accounting server or servers.

Examples

The following example specifies that accounting records will be generated for any supported command, and that these records are sent to the server from the group named adminserver:

```
hostname(config)# aaa accounting command adminserver
```

Related Commands

Command	Description
aaa accounting	Enables or disables TACACS+ or RADIUS user accounting (on a server designated by the **aaa-server** command).
clear configure aaa	Removes or resets the configured AAA accounting values.
show running-config aaa	Displays the AAA configuration.

aaa accounting console

To enable support for AAA accounting for administrative access, use the **aaa accounting console** command in global configuration mode. To disable support for aaa accounting for administrative access, use the **no** form of this command.

aaa accounting {**serial | telnet | ssh | enable**} **console** *server-tag*

no aaa accounting {**serial | telnet | ssh | enable**} **console** *server-tag*

Syntax Description

enable	Enables the generation of accounting records to mark the entry to and exit from privileged EXEC mode.
serial	Enables the generation of accounting records to mark the establishment and termination of admin sessions that are established via the serial console interface.
server-tag	Specifies the server group to which accounting records are sent, defined by the **aaa-server protocol** command. Valid server group protocols are RADIUS and TACACS+.
ssh	Enables the generation of accounting records to mark the establishment and termination of admin sessions created over SSH.
telnet	Enables the generation of accounting records to mark the establishment and termination of admin sessions created over Telnet.

Defaults

By default, AAA accounting for administrative access is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You must specify the name of the server group, previously specified in the **aaa-server** command.

Examples

The following example specifies that accounting records will be generated for enable access, and that these records are sent to the server named adminserver:

```
hostname(config)# aaa accounting enable console adminserver
```

Related Commands

Command	Description
aaa accounting match	Enables or disables TACACS+ or RADIUS user accounting (on a server designated by the **aaa-server** command),
aaa accounting command	Specifies that each command, or commands of a specified privilege level or higher, entered by an administrator/user is recorded and sent to the accounting server or servers.
clear configure aaa	Removes or resets the configured AAA accounting values.
show running-config aaa	Displays the AAA configuration.

aaa accounting include, exclude

To enable accounting for TCP or UDP connections through the ASA, use the **aaa accounting include** command in global configuration mode. To exclude addresses from accounting, use the **aaa accounting exclude** command. To disable accounting, use the **no** form of this command.

aaa accounting {**include** | **exclude**} *service interface_name inside_ip inside_mask* [*outside_ip outside_mask*] *server_tag*

no aaa accounting {**include** | **exclude**} *service interface_name inside_ip inside_mask* [*outside_ip outside_mask*] *server_tag*

Syntax Description

exclude	Excludes the specified service and address from accounting if it was already specified by an **include** command.
include	Specifies the services and IP addresses that require accounting. Traffic that is not specified by an **include** statement is not processed.
inside_ip	Specifies the IP address on the higher security interface. This address might be the source or the destination address, depending on the interface to which you apply this command. If you apply the command to the lower security interface, then this address is the destination address. If you apply the command to the higher security interface, then this address is the source address. Use 0 to mean all hosts.
inside_mask	Specifies the network mask for the inside IP address. Use 0 if the IP address is 0. Use 255.255.255.255 for a host.
interface_name	Specifies the interface name from which users require accounting.
outside_ip	(Optional) Specifies the IP address on the lower security interface. This address might be the source or the destination address, depending on the interface to which you apply this command. If you apply the command to the lower security interface, then this address is the source address. If you apply the command to the higher security interface, then this address is the destination address. Use 0 to mean all hosts.
outside_mask	(Optional) Specifies the network mask for the outside IP address. Use 0 if the IP address is 0. Use 255.255.255.255 for a host.
server_tag	Specifies the AAA server group defined by the **aaa-server host** command.
service	Specifies the services that require accounting. You can specify one of the following values: • **any** or **tcp/0** (specifies all TCP traffic) • ftp • http • **https** • **ssh** • telnet • **tcp/***port* • **udp/***port*

Defaults

By default, AAA accounting for administrative access is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The ASA can send accounting information to a RADIUS or TACACS+ server about any TCP or UDP traffic that passes through the ASA. If that traffic is also authenticated, then the AAA server can maintain accounting information by username. If the traffic is not authenticated, the AAA server can maintain accounting information by IP address. Accounting information includes when sessions start and stop, username, the number of bytes that pass through the ASA for the session, the service used, and the duration of each session.

Before you can use this command, you must first designate a AAA server with the **aaa-server** command.

To enable accounting for traffic that is specified by an ACL, use the **aaa accounting match** command. You cannot use the **match** command in the same configuration as the **include** and **exclude** commands. We suggest that you use the **match** command instead of the **include** and **exclude** commands; the **include** and **exclude** commands are not supported by ASDM.

You cannot use the **aaa accounting include** and **exclude** commands between same-security interfaces. For that scenario, you must use the **aaa accounting match** command.

Examples

The following example enables accounting on all TCP connections:

```
hostname(config)# aaa-server mygroup protocol tacacs+
hostname(config)# aaa-server mygroup (inside) host 192.168.10.10 thekey timeout 20
hostname(config)# aaa accounting include any inside 0 0 0 0 mygroup
```

Related Commands

Command	Description
aaa accounting match	Enables accounting for traffic specified by an ACL.
aaa accounting command	Enables accounting of administrative access.
aaa-server host	Configures the AAA server.
clear configure aaa	Clears the AAA configuration.
show running-config aaa	Displays the AAA configuration.

aaa accounting match

To enable accounting for TCP and UDP connections through the ASA, use the **aaa accounting match** command in global configuration mode. To disable accounting for traffic, use the **no** form of this command.

aaa accounting match *acl_name interface_name server_tag*

no aaa accounting match *acl_name interface_name server_tag*

Syntax Description

acl_name	Specifies the traffic that requires accounting by matching an ACL name. Permit entries in the ACL are accounted, while deny entries are exempt from accounting. This command is only supported for TCP and UDP traffic. A warning message is displayed if you enter this command and it references an ACL that permits other protocols.
interface_name	Specifies the interface name from which users require accounting.
server_tag	Specifies the AAA server group tag defined by the **aaa-server** command.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The ASA can send accounting information to a RADIUS or TACACS+ server about any TCP or UDP traffic that passes through the ASA. If that traffic is also authenticated, then the AAA server can maintain accounting information by username. If the traffic is not authenticated, the AAA server can maintain accounting information by IP address. Accounting information includes when sessions start and stop, username, the number of bytes that pass through the ASA for the session, the service used, and the duration of each session.

Before you can use this command, you must first designate a AAA server with the **aaa-server** command.

Accounting information is sent only to the active server in a server group unless you enable simultaneous accounting using the **accounting-mode** command in aaa-server protocol configuration mode.

You cannot use the **aaa accounting match** command in the same configuration as the **aaa accounting include** and **exclude** commands. We suggest that you use the **match** command instead of the **include** and **exclude** commands; the **include** and **exclude** commands are not supported by ASDM.

Examples

The following example enables accounting for traffic matching a specific ACL acl2:

```
hostname(config)# access-list acl12 extended permit tcp any any
hostname(config)# aaa accounting match acl2 outside radserver1
```

Related Commands

Command	Description
aaa accounting include, exclude	Enables accounting by specifying the IP addresses directly in the command.
access-list extended	Creates an ACL.
clear configure aaa	Removes AAA configuration.
show running-config aaa	Displays the AAA configuration.

aaa authentication console

To authenticate users who access the ASA CLI over a serial, SSH, HTTPS (ASDM), or Telnet connection, or to authenticate users who access privileged EXEC mode using the **enable** command, use the **aaa authentication console** command in global configuration mode. To disable authentication, use the **no** form of this command.

aaa authentication {**serial | enable | telnet | ssh | http**} **console** {**LOCAL |** *server_group* [**LOCAL**]}

no aaa authentication {**serial | enable | telnet | ssh | http**} **console** {**LOCAL |** *server_group* [**LOCAL**]}

Syntax Description

enable	Authenticates users who access privileged EXEC mode when they use the **enable** command.
http	Authenticates ASDM users who access the ASA over HTTPS. You only need to configure HTTPS authentication if you want to use a RADIUS or TACACS+ server. By default, ASDM uses the local database for authentication even if you do not configure this command.

LOCAL	Uses the local database for authentication. The **LOCAL** keyword is case sensitive. If the local database is empty, the following warning message appears:
	`Warning:local database is empty! Use 'username' command to define local users.`
	If the local database becomes empty when the **LOCAL** keyword is still present in the configuration, the following warning message appears:
	`Warning:Local user database is empty and there are still commands using 'LOCAL' for authentication.`

server-tag [**LOCAL**]	Specifies the AAA server group tag defined by the **aaa-server** command. HTTPS management authentication does not support the SDI protocol for a AAA server group. If you use the **LOCAL** keyword in addition to the *server-tag* argument, you can configure the ASA to use the local database as a fallback method if the AAA server is unavailable. The **LOCAL** keyword is case sensitive. We recommend that you use the same username and password in the local database as the AAA server because the ASA prompt does not give any indication which method is being used.
serial	Authenticates users who access the ASA using the serial console port.
ssh	Authenticates users who access the ASA using SSH.
telnet	Authenticates users who access the ASA using Telnet.

Defaults

By default, fallback to the local database is disabled.

If the **aaa authentication telnet console** command is not defined, you can gain access to the ASA CLI with the ASA login password (set with the **password** command).

If the **aaa authentication http console** command is not defined, you can gain access to the ASA (via ASDM) with no username and the ASA enable password (set with the **enable password** command). If the **aaa** commands are defined, but the HTTPS authentication requests a time out, which implies the AAA servers might be down or not available, you can gain access to the ASA using the default administrator username and the enable password. By default, the enable password is not set.

If the **aaa authentication ssh console** command is not defined, you can gain access to the ASA CLI with the username **pix** and with the ASA enable password (set with the **enable password** command). By default, the enable password is blank. This behavior differs from when you log in to the ASA without AAA configured; in that case, you use the login password (set by the **password** command).

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Before the ASA can authenticate a Telnet or SSH user, you must first configure access to the ASA using the **telnet** or **ssh** commands. These commands identify the IP addresses that are allowed to communicate with the ASA.

Logging in to the Security Appliance

After you connect to the ASA, you log in and access user EXEC mode.

- If you do not enable any authentication for Telnet, you do not enter a username; you enter the login password (set with the **password** command). For SSH, you enter “pix” as the username, and enter the login password.
- If you enable Telnet or SSH authenticationusing this command, you enter the username and password as defined on the AAA server or local user database.

Accessing Privileged EXEC Mode

To enter privileged EXEC mode, enter the **enable** command or the **login** command (if you are using the local database only).

- If you do not configure enable authentication, enter the system enable password when you enter the **enable** command (set by the **enable password** command). However, if you do not use enable authentication, after you enter the **enable** command, you are no longer logged in as a particular user. To maintain your username, use enable authentication.
- If you configure enable authentication, the ASA prompts you for your username and password.

For authentication using the local database, you can use the **login** command, which maintains the username but requires no configuration to turn on authentication.

Accessing ASDM

By default, you can log into ASDM with a blank username and the enable password set by the **enable password** command. However, if you enter a username and password at the login screen (instead of leaving the username blank), ASDM checks the local database for a match.

Although you can configure HTTPS authentication using this command and specify the local database, that functionality is always enabled by default. You should only configure HTTPS authentication if you want to use a AAA server for authentication. HTTPS authentication does not support the SDI protocol for a AAA server group. The maximum username prompt for HTTPS authentication is 30 characters. The maximum password length is 16 characters.

No Support in the System Execution Space for AAA Commands

In multiple context mode, you cannot configure any AAA commands in the system configuration.

Number of Login Attempts Allowed

As the following table shows, the action of the prompts for authenticated access to the ASA CLI differ, depending on the option you choose with the **aaa authentication console** command.

Option	Number of Login Attempts Allowed
enable	Three tries before access is denied
serial	Continual until success
ssh	Three tries before access is denied
telnet	Continual until success
http	Continual until success

Limiting User CLI and ASDM Access

You can configure management authorization with the **aaa authorization exec** command to limit a local user, RADIUS, TACACS+, or LDAP user (if you map LDAP attributes to RADIUS attributes) from accessing the CLI, ASDM, or the **enable** command.

Note Serial access is not included in management authorization, so if you configure **aaa authentication serial console**, then any user who authenticates can access the console port.

To configure the user for management authorization, see the following requirements for each AAA server type or local user:

- RADIUS or LDAP (mapped) users—Configures the Service-Type attribute for one of the following values. (To map LDAP attributes, see the **ldap attribute-map** command.)
  - Service-Type 6 (Administrative)—Allows full access to any services specified by the **aaa authentication console** commands.
  - Service-Type 7 (NAS prompt)—Allows access to the CLI when you configure the **aaa authentication {telnet | ssh} console** command, but denies ASDM configuration access if you configure the **aaa authentication http console** command. ASDM monitoring access is allowed. If you configure **enable** authentication with the **aaa authentication enable console** command, the user cannot access privileged EXEC mode using the **enable** command.

  - Service-Type 5 (Outbound)—Denies management access. The user cannot use any services specified by the **aaa authentication console** commands (excluding the **serial** keyword; serial access is allowed). Remote access (IPSec and SSL) users can still authenticate and terminate their remote access sessions.

- TACACS+ users—Authorization is requested with "service=shell," and the server responds with PASS or FAIL.
  - PASS, privilege level 1—Allows full access to any services specified by the **aaa authentication console** commands.
  - PASS, privilege level 2 and higher—Allows access to the CLI when you configure the **aaa authentication {telnet | ssh} console** command, but denies ASDM configuration access if you configure the **aaa authentication http console** command. ASDM monitoring access is allowed. If you configure enable authentication with the **aaa authentication enable console** command, the user cannot access privileged EXEC mode using the **enable** command.
  - FAIL—Denies management access. The user cannot use any services specified by the **aaa authentication console** commands (excluding the **serial** keyword; serial access is allowed).
- Local users—Set the **service-type** command. By default, the **service-type** is **admin**, which allows full access to any services specified by the **aaa authentication console** commands.

Examples

The following example shows use of the **aaa authentication console** command for a Telnet connection to a RADIUS server with the server tag "radius":

```
hostname(config)# aaa authentication telnet console radius
```

The following example identifies the server group "AuthIn" for enable authentication:

```
hostname(config)# aaa authentication enable console AuthIn
```

The following example shows use of the **aaa authentication console** command with fallback to the LOCAL user database if all the servers in the group "svrgrp1" fail:

```
hostname(config)# aaa-server svrgrp1 protocol tacacs
hostname(config)# aaa authentication ssh console svrgrp1 LOCAL
```

Related Commands

Command	Description
aaa authentication	Enables or disables user authentication.
aaa-server host	Specifies the AAA server to use for user authentication.
clear configure aaa	Remove or resets the configured AAA accounting values.
ldap map-attributes	Maps LDAP attributes to RADIUS attributes that the ASA can understand.
service-type	Limits a local user CLI access.
show running-config aaa	Displays the AAA configuration.

aaa authentication include, exclude

To enable authentication for connections through the ASA, use the **aaa authentication include** command in global configuration mode. To disable authentication, use the **no** form of this command. To exclude addresses from authentication, use the **aaa authentication exclude** command. To not exclude addresses from authentication, use the **no** form of this command.

aaa authentication {include | exclude} *service interface_name inside_ip inside_mask* [*outside_ip outside_mask*] {*server_tag* | **LOCAL**}

no aaa authentication {include | exclude} *service interface_name inside_ip inside_mask* [*outside_ip outside_mask*] {*server_tag* | **LOCAL**}

Syntax Description

exclude	Excludes the specified service and address from authentication if it was already specified by an **include** command.
include	Specifies the services and IP addresses that require authentication. Traffic that is not specified by an **include** statement is not processed.
inside_ip	Specifies the IP address on the higher security interface. This address might be the source or the destination address, depending on the interface to which you apply this command. If you apply the command to the lower security interface, then this address is the destination address. If you apply the command to the higher security interface, then this address is the source address. Use 0 to mean all hosts.
inside_mask	Specifies the network mask for the inside IP address. Use 0 if the IP address is 0. Use 255.255.255.255 for a host.
interface_name	Specifies the interface name from which users require authentication.
LOCAL	Specifies the local user database.
outside_ip	(Optional) Specifies the IP address on the lower security interface. This address might be the source or the destination address, depending on the interface to which you apply this command. If you apply the command to the lower security interface, then this address is the source address. If you apply the command to the higher security interface, then this address is the destination address. Use 0 to mean all hosts.
outside_mask	(Optional) Specifies the network mask for the outside IP address. Use 0 if the IP address is 0. Use 255.255.255.255 for a host.

server_tag	Specifies the AAA server group defined by the **aaa-server** command.
service	Specifies the services that require authentication. You can specify one of the following values: • **any** or **tcp/0** (specifies all TCP traffic) • ftp • http • **https** • **ssh** • telnet • **tcp/***port*[**-***port*] • **udp/***port*[**-***port*] • **icmp/***type* • *protocol*[**/***port*[**-***port*]] Although you can configure the ASA to require authentication for network access to any protocol or service, users can authenticate directly with HTTP, HTTPS, Telnet, or FTP only. A user must first authenticate with one of these services before the ASA allows other traffic requiring authentication. See "Usage Guidelines" for more information.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To enable authentication for traffic that is specified by an ACL, use the **aaa authentication match** command. You cannot use the **match** command in the same configuration as the **include** and **exclude** commands. We suggest that you use the **match** command instead of the **include** and **exclude** commands; the **include** and **exclude** commands are not supported by ASDM.

You cannot use the **aaa authentication include** and **exclude** commands between same-security interfaces. For that scenario, you must use the **aaa authentication match** command.

TCP sessions might have their sequence numbers randomized even if you disable sequence randomization. This occurs when a AAA server proxies the TCP session to authenticate the user before permitting access.

One-Time Authentication

A user at a given IP address only needs to authenticate one time for all rules and types, until the authentication session expires. (See the **timeout uauth** command for timeout values.) For example, if you configure the ASA to authenticate Telnet and FTP, and a user first successfully authenticates for Telnet, then as long as the authentication session exists, the user does not also have to authenticate for FTP.

For HTTP or HTTPS authentication, once authenticated, a user never has to reauthenticate, no matter how low the **timeout uauth** command is set, because the browser caches the string "Basic=Uuhjksdkfhk==" in every subsequent connection to that particular site. This can be cleared only when the user exits *all* instances of the web browser and restarts. Flushing the cache is of no use.

Applications Required to Receive an Authentication Challenge

Although you can configure the ASA to require authentication for network access to any protocol or service, users can authenticate directly with HTTP, HTTPS, Telnet, or FTP only. A user must first authenticate with one of these services before the ASA allows other traffic requiring authentication.

The authentication ports that the ASA supports for AAA are fixed:

- Port 21 for FTP
- Port 23 for Telnet
- Port 80 for HTTP
- Port 443 for HTTPS

Security Appliance Authentication Prompts

For Telnet and FTP, the ASA generates an authentication prompt.

For HTTP, the ASA uses basic HTTP authentication by default, and provides an authentication prompt. You can optionally configure the ASA to redirect users to an internal web page where they can enter their username and password (configured with the **aaa authentication listener** command).

For HTTPS, the ASA generates a custom login screen. You can optionally configure the ASA to redirect users to an internal web page where they can enter their username and password (configured with the **aaa authentication listener** command).

Redirection is an improvement over the basic method because it provides an improved user experience when authenticating, and an identical user experience for HTTP and HTTPS in both Easy VPN and firewall modes. It also supports authenticating directly with the ASA.

You might want to continue to use basic HTTP authentication if: you do not want the ASA to open listening ports; if you use NAT on a router and you do not want to create a translation rule for the web page served by the ASA; basic HTTP authentication might work better with your network. For example non-browser applications, like when a URL is embedded in email, might be more compatible with basic authentication.

After you authenticate correctly, the ASA redirects you to your original destination. If the destination server also has its own authentication, the user enters another username and password. If you use basic HTTP authentication and need to enter another username and password for the destination server, then you need to configure the **virtual http** command.

Note If you use HTTP authentication without using the **aaa authentication secure-http-client** command, the username and password are sent from the client to the ASA in clear text. We recommend that you use the **aaa authentication secure-http-client** command whenever you enable HTTP authentication.

For FTP, a user has the option of entering the ASA username followed by an at sign (@) and then the FTP username (name1@name2). For the password, the user enters the ASA password followed by an at sign (@) and then the FTP password (password1@password2). For example, enter the following text.

```
name> asa1@partreq
password> letmein@he110
```

This feature is useful when you have cascaded firewalls that require multiple logins. You can separate several names and passwords by multiple at signs (@).

The number of login attempts allowed differs between the supported protocols:

Protocol	Number of Login Attempts Allowed
FTP	Incorrect password causes the connection to be dropped immediately.
HTTP HTTPS	Continual reprompting until successful login.
Telnet	Four tries before dropping the connection.

Static PAT and HTTP

For HTTP authentication, the ASA checks real ports when static PAT is configured. If it detects traffic destined for real port 80, regardless of the mapped port, the ASA intercepts the HTTP connection and enforces authentication.

For example, assume that outside TCP port 889 is translated to port 80 (www) and that any relevant ACLs permit the traffic:

```
static (inside,outside) tcp 10.48.66.155 889 192.168.123.10 www netmask 255.255.255.255
```

Then when users try to access 10.48.66.155 on port 889, the ASA intercepts the traffic and enforces HTTP authentication. Users see the HTTP authentication page in their web browsers before the ASA allows HTTP connection to complete.

If the local port is different than port 80, as in the following example:

```
static (inside,outside) tcp 10.48.66.155 889 192.168.123.10 111 netmask 255.255.255.255
```

Then users do not see the authentication page. Instead, the ASA sends an error message to the web browser indicating that the user must be authenticated before using the requested service.

Authenticating Directly with the ASA

If you do not want to allow HTTP, HTTPS, Telnet, or FTP through the ASA but want to authenticate other types of traffic, you can authenticate with the ASA directly using HTTP or HTTPS by configuring the **aaa authentication listener** command.

You can authenticate directly with the ASA at the following URLs when you enable AAA for the interface:

http://*interface_ip*[**:***port*]**/netaccess/connstatus.html**
https://*interface_ip*[**:***port*]**/netaccess/connstatus.html**

Alternatively, you can configure virtual Telnet (using the **virtual telnet** command). With virtual Telnet, the user Telnets to a given IP address configured on the ASA, and the ASA provides a Telnet prompt.

Examples

The following example includes for authentication TCP traffic on the outside interface, with an inside IP address of 192.168.0.0 and a netmask of 255.255.0.0, with an outside IP address of all hosts, and using a server group named tacacs+. The second command line excludes Telnet traffic on the outside interface with an inside address of 192.168.38.0, with an outside IP address of all hosts:

```
hostname(config)# aaa authentication include tcp/0 outside 192.168.0.0 255.255.0.0 0 0
tacacs+
hostname(config)# aaa authentication exclude telnet outside 192.168.38.0 255.255.255.0 0 0
tacacs+
```

The following examples demonstrate ways to use the *interface-name* parameter. The ASA has an inside network of 192.168.1.0, an outside network of 209.165.201.0 (subnet mask 255.255.255.224), and a perimeter network of 209.165.202.128 (subnet mask 255.255.255.224).

This example enables authentication for connections originated from the inside network to the outside network:

```
hostname(config)# aaa authentication include tcp/0 inside 192.168.1.0 255.255.255.0
209.165.201.0 255.255.255.224 tacacs+
```

This example enables authentication for connections originated from the inside network to the perimeter network:

```
hostname(config)#aaa authentication include tcp/0 inside 192.168.1.0 255.255.255.0
209.165.202.128 255.255.255.224 tacacs+
```

This example enables authentication for connections originated from the outside network to the inside network:

```
hostname(config)# aaa authentication include tcp/0 outside 192.168.1.0 255.255.255.0
209.165.201.0 255.255.255.224 tacacs+
```

This example enables authentication for connections originated from the outside network to the perimeter network:

```
hostname(config)# aaa authentication include tcp/0 outside 209.165.202.128 255.255.255.224
209.165.201.0 255.255.255.224 tacacs+
```

This example enables authentication for connections originated from the perimeter network to the outside network:

```
hostname(config)#aaa authentication include tcp/0 perimeter 209.165.202.128
255.255.255.224 209.165.201.0 255.255.255.224 tacacs+
```

Related Commands

Command	Description
aaa authentication console	Enables authentication for management access.
aaa authentication match	Enables user authentication for through traffic.
aaa authentication secure-http-client	Provides a secure method for user authentication to the ASA before allowing HTTP requests to traverse the ASA.

aaa-server	Configures group-related server attributes.
aaa-server host	Configures host-related attributes.

aaa authentication listener

To enable HTTP(S) listening ports to authenticate network users, use the **aaa authentication listener** command in global configuration mode. When you enable a listening port, the ASA serves an authentication page for direct connections and optionally for through traffic. To disable the listeners, use the **no** form of this command.

aaa authentication listener http[**s**] *interface_name* [**port** *portnum*] [**redirect**]

no aaa authentication listener http[**s**] *interface_name* [**port** *portnum*] [**redirect**]

Syntax Description

http[**s**]	Specifies the protocol that you want to listen for, either HTTP or HTTPS. Enter this command separately for each protocol.
interface_name	Specifies the interface on which you enable listeners.
port *portnum*	Specifies the port number that the ASA listens on for direct or redirected traffic; the defaults are 80 (HTTP) and 443 (HTTPS). You can use any port number and retain the same functionality, but be sure your direct authentication users know the port number; redirected traffic is sent to the correct port number automatically, but direct authenticators must specify the port number manually.
redirect	Redirects through traffic to an authentication web page served by the ASA. Without this keyword, only traffic directed to the ASA interface can access the authentication web pages.

Defaults

By default, no listener services are enabled, and HTTP connections use basic HTTP authentication. If you enable the listeners, the default ports are 80 (HTTP) and 443 (HTTPS).

If you are upgrading from 7.2(1), then the listeners are enabled on ports 1080 (HTTP) and 1443 (HTTPS). The **redirect** option is also enabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.2(2)	This command was introduced.

Usage Guidelines

Without the **aaa authentication listener** command, when HTTP(S) users need to authenticate with the ASA after you configure the **aaa authentication match** or **aaa authentication include** command, the ASA uses basic HTTP authentication. For HTTPS, the ASA generates a custom login screen.

If you configure the **aaa authentication listener** command with the **redirect** keyword, the ASA redirects all HTTP(S) authentication requests to web pages served by the ASA.

Redirection is an improvement over the basic method because it provides an improved user experience when authenticating, and an identical user experience for HTTP and HTTPS in both Easy VPN and firewall modes. It also supports authenticating directly with the ASA.

You might want to continue to use basic HTTP authentication if: you do not want the ASA to open listening ports; if you use NAT on a router and you do not want to create a translation rule for the web page served by the ASA; basic HTTP authentication might work better with your network. For example non-browser applications, like when a URL is embedded in email, might be more compatible with basic authentication.

If you enter the **aaa authentication listener** command *without* the **redirect** option, then you only enable direct authentication with the ASA, while letting through traffic use basic HTTP authentication. The **redirect** option enables both direct and through-traffic authentication. Direct authentication is useful when you want to authenticate traffic types that do not support authentication challenges; you can have each user authenticate directly with the ASA before using any other services.

Note If you enable the **redirect** option, you cannot also configure static PAT for the same interface where you translate the interface IP address and the same port that is used for the listener; NAT succeds, but authentication fails. For example, the following configuration is unsupported:

```
hostname(config)# static (inside,outside) tcp interface www 192.168.0.50 www netmask
255.255.255.255
hostname(config)# aaa authentication listener http outside redirect
```

The following configuration is supported; the listener uses port 1080 instead of the default 80:

```
hostname(config)# static (inside,outside) tcp interface www 192.168.0.50 www netmask
255.255.255.255
hostname(config)# aaa authentication listener http outside port 1080 redirect
```

Examples

The following example configures the ASA to redirect HTTP and HTTPS connections to the default ports:

```
hostname(config)# aaa authentication http redirect
hostname(config)# aaa authentication https redirect
```

The following example allows authentication requests directly to the ASA; through traffic uses basic HTTP authentication:

```
hostname(config)# aaa authentication http
hostname(config)# aaa authentication https
```

The following example configures the ASA to redirect HTTP and HTTPS connections to non-default ports:

```
hostname(config)# aaa authentication http port 1100 redirect
hostname(config)# aaa authentication https port 1400 redirect
```

Related Commands

Command	Description
aaa authentication match	Configures user authentication for through traffic.

aaa authentication secure-http-client	Enables SSL and secure username and password exchange between HTTP clients and the ASA.
clear configure aaa	Removes the configured AAA configuration.
show running-config aaa	Displays the AAA configuration.
virtual http	Supports cascading HTTP authentications with basic HTTP authentication.

aaa authentication match

To enable authentication for connections through the ASA, use the **aaa authentication match** command in global configuration mode. To disable authentication, use the **no** form of this command.

aaa authentication match *acl_name interface_name* {*server_tag* | **LOCAL**} **user-identity**

no aaa authentication match *acl_name interface_name* {*server_tag* | **LOCAL**} **user-identity**

Syntax Description

acl_name	Specifies an extended ACL name.
interface_name	Specifies the interface name from which to authenticate users.
LOCAL	Specifies the local user database.
server_tag	Specifies the AAA server group tag defined by the **aaa-server** command.
user-identity	Specifies the user identity that is mapped to the identity firewall.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	The **user-identity** keyword was added.

Usage Guidelines

You cannot use the **aaa authentication match** command in the same configuration as the **include** and **exclude** commands. We suggest that you use the **match** command instead of the **include** and **exclude** commands; the **include** and **exclude** commands are not supported by ASDM.

TCP sessions might have their sequence numbers randomized even if you disable sequence randomization. This occurs when a AAA server proxies the TCP session to authenticate the user before permitting access.

One-Time Authentication

A user at a given IP address only needs to authenticate one time for all rules and types, until the authentication session expires. (See the **timeout uauth** command for timeout values.) For example, if you configure the ASA to authenticate Telnet and FTP, and a user first successfully authenticates for Telnet, then as long as the authentication session exists, the user does not also have to authenticate for FTP.

For HTTP or HTTPS authentication, once authenticated, a user never has to reauthenticate, no matter how low the **timeout uauth** command is set, because the browser caches the string "Basic=Uuhjksdkfhk==" in every subsequent connection to that particular site. This can be cleared only when the user exits *all* instances of the web browser and restarts. Flushing the cache is of no use.

Applications Required to Receive an Authentication Challenge

Although you can configure the ASA to require authentication for network access to any protocol or service, users can authenticate directly with HTTP, HTTPS, Telnet, or FTP only. A user must first authenticate with one of these services before the ASA allows other traffic requiring authentication.

The authentication ports that the ASA supports for AAA are fixed:

- Port 21 for FTP
- Port 23 for Telnet
- Port 80 for HTTP
- Port 443 for HTTPS (requires the **aaa authentication listener** command)

ASA Authentication Prompts

For Telnet and FTP, the ASA generates an authentication prompt.

For HTTP, the ASA uses basic HTTP authentication by default, and provides an authentication prompt. You can optionally configure the ASA to redirect users to an internal web page where they can enter their username and password (configured with the **aaa authentication listener** command).

For HTTPS, the ASA generates a custom login screen. You can optionally configure the ASA to redirect users to an internal web page where they can enter their username and password (configured with the **aaa authentication listener** command).

Redirection is an improvement over the basic method because it provides an improved user experience when authenticating, and an identical user experience for HTTP and HTTPS in both Easy VPN and firewall modes. It also supports authenticating directly with the ASA.

You might want to continue to use basic HTTP authentication if: you do not want the ASA to open listening ports; if you use NAT on a router and you do not want to create a translation rule for the web page served by the ASA; basic HTTP authentication might work better with your network. For example non-browser applications, like when a URL is embedded in email, might be more compatible with basic authentication.

After you authenticate correctly, the ASA redirects you to your original destination. If the destination server also has its own authentication, the user enters another username and password. If you use basic HTTP authentication and need to enter another username and password for the destination server, then you need to configure the **virtual http** command.

Note If you use HTTP authentication without using the **aaa authentication secure-http-client** command, the username and password are sent from the client to the ASA in clear text. We recommend that you use the **aaa authentication secure-http-client** command whenever you enable HTTP authentication.

For FTP, a user has the option of entering the ASA username followed by an at sign (@) and then the FTP username (name1@name2). For the password, the user enters the ASA password followed by an at sign (@) and then the FTP password (password1@password2). For example, enter the following text.

```
name> asa1@partreq
password> letmein@he110
```

This feature is useful when you have cascaded firewalls that require multiple logins. You can separate several names and passwords by multiple at signs (@).

The number of login attempts allowed differs between the supported protocols:

Protocol	Number of Login Attempts Allowed
FTP	Incorrect password causes the connection to be dropped immediately.
HTTP HTTPS	Continual reprompting until successful login.
Telnet	Four tries before dropping the connection.

Static PAT and HTTP

For HTTP authentication, the ASA checks real ports when static PAT is configured. If it detects traffic destined for real port 80, regardless of the mapped port, the ASA intercepts the HTTP connection and enforces authentication.

For example, assume that outside TCP port 889 is translated to port 80 (www) and that any relevant ACLs permit the traffic:

```
static (inside,outside) tcp 10.48.66.155 889 192.168.123.10 www netmask 255.255.255.255
```

Then when users try to access 10.48.66.155 on port 889, the ASA intercepts the traffic and enforces HTTP authentication. Users see the HTTP authentication page in their web browsers before the ASA allows HTTP connection to complete.

If the local port is different than port 80, as in the following example:

```
static (inside,outside) tcp 10.48.66.155 889 192.168.123.10 111 netmask 255.255.255.255
```

Then users do not see the authentication page. Instead, the ASA sends to the web browser an error message indicating that the user must be authenticated before using the requested service.

Authenticating Directly with the ASA

If you do not want to allow HTTP, HTTPS, Telnet, or FTP through the ASA but want to authenticate other types of traffic, you can authenticate with the ASA directly using HTTP or HTTPS by configuring the **aaa authentication listener** command.

You can authenticate directly with the ASA at the following URLs when you enable AAA for the interface:

http://*interface_ip*[**:***port*]**/netaccess/connstatus.html**
https://*interface_ip*[**:***port*]**/netaccess/connstatus.html**

Alternatively, you can configure virtual Telnet (using the **virtual telnet** command). With virtual Telnet, the user Telnets to a given IP address configured on the ASA, and the ASA provides a Telnet prompt.

Examples

The following set of examples illustrates how to use the **aaa authentication match** command:

```
hostname(config)# show access-list
access-list mylist permit tcp 10.0.0.0 255.255.255.0 192.168.2.0 255.255.255.0 (hitcnt=0)
access-list yourlist permit tcp any any (hitcnt=0)

hostname(config)# show running-config aaa
aaa authentication match mylist outbound TACACS+
```

In this context, the following command:

```
hostname(config)# aaa authentication match yourlist outbound tacacs
```

is equivalent to this command:

```
hostname(config)# aaa authentication include TCP/0 outbound 0.0.0.0 0.0.0.0 0.0.0.0
0.0.0.0 tacacs
```

The **aaa** command statement list is order-dependent between **access-list** command statements. If you enter the following command:

```
hostname(config)# aaa authentication match mylist outbound TACACS+
```

before this command:

```
hostname(config)# aaa authentication match yourlist outbound tacacs
```

the ASA tries to find a match in the **mylist access-list** command statement group before it tries to find a match in the **yourlist access-list** command statement group.

To enable authentication for connections through the ASA and match it to the Identity Firewall feature, enter the following command:

```
hostname(config)# aaa authenticate match access_list_name inside user-identity
```

Related Commands

Command	Description
aaa authorization	Enables user authorization services.
access-list extended	Creates an ACL.
clear configure aaa	Removes the configured AAA configuration.
show running-config aaa	Displays the AAA configuration.

aaa authentication secure-http-client

To enable SSL and secure username and password exchange between HTTP clients and the ASA, use the **aaa authentication secure-http-client** command in global configuration mode. To disable this function, use the **no** form of this command.

aaa authentication secure-http-client

no aaa authentication secure-http-client

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **aaa authentication secure-http-client** command offers a secure method for user authentication to the ASA before allowing user HTTP-based web requests to traverse the ASA. This command is used for HTTP cut-through proxy authentication through SSL.

The **aaa authentication secure-http-client** command has the following limitations:

- At runtime, a maximum of 16 HTTPS authentication processes is allowed. If all 16 HTTPS authentication processes are running, the 17th, new HTTPS connection requiring authentication is not allowed.
- When **uauth timeout 0** is configured (the **uauth timeout** is set to 0), HTTPS authentication might not work. If a browser initiates multiple TCP connections to load a web page after HTTPS authentication, the first connection is let through, but the subsequent connections trigger authentication. As a result, users are continuously presented with an authentication page, even if the correct username and password are entered each time. To work around this, set the **uauth timeout** to 1 second with the **timeout uauth 0:0:1** command. However, this workaround opens a 1-second window of opportunity that might allow non-authenticated users to go through the firewall if they are coming from the same source IP address.

- Because HTTPS authentication occurs on the SSL port 443, users must not configure an **access-list** command statement to block traffic from the HTTP client to HTTP server on port 443. Furthermore, if static PAT is configured for web traffic on port 80, it must also be configured for the SSL port. In the following example, the first line configures static PAT for web traffic and the second line must be added to support the HTTPS authentication configuration:

```
static (inside,outside) tcp 10.132.16.200 www 10.130.16.10 www
static (inside,outside) tcp 10.132.16.200 443 10.130.16.10 443
```

Examples

The following example configures HTTP traffic to be securely authenticated:

```
hostname(config)# aaa authentication secure-http-client
hostname(config)# aaa authentication include http...
```

where "..." represents your values for *authen_service if_name local_ip local_mask* [*foreign_ip foreign_mask*] *server_tag*.

The following command configures HTTPS traffic to be securely authenticated:

```
hostname (config)# aaa authentication include https...
```

where "..." represents your values for *authentication -service interface-name local-ip local-mask* [*foreign-ip foreign-mask*] *server-tag*.

Note The **aaa authentication secure-https-client** command is not needed for HTTPS traffic.

Related Commands

Command	Description
aaa authentication	Enables LOCAL, TACACS+, or RADIUS user authentication, on a server designated by the **aaa-server** command.
virtual telnet	Accesses the ASA virtual server.

aaa authorization command

To enable command authorization, use the **aaa authorization command** command in global configuration mode. To disable command authorization, use the **no** form of this command.

aaa authorization command {**LOCAL** | *tacacs+ server_tag* [**LOCAL**]}

no aaa authorization command {**LOCAL** | *tacacs+ server_tag* [**LOCAL**]}

Syntax Description

LOCAL	Enables local command privilege levels set by the **privilege** command. When a local, RADIUS, or LDAP (if you map LDAP attributes to RADIUS attributes) user authenticates for CLI access, the ASA places that user in the privilege level that is defined by the local database, RADIUS, or LDAP server. The user can access commands at the user privilege level and below. If you specify **LOCAL** after a TACACS+ server group tag, the local user database is used for command authorization only as a fallback when the TACACS+ server group is unavailable.
tacacs+ server_tag	Specifies a predefined server group tag for the TACACS+ authorization server. The AAA server group tag as defined by the **aaa-server** command.

Defaults

Fallback to the local database for authorization is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	Support added for fallback to LOCAL authorization when a TACACS+ server group is temporarily unavailable.
8.0(2)	Support for privilege levels defined on RADIUS or LDAP servers was added.

Usage Guidelines

The **aaa authorization command** command specifies whether command execution at the CLI is subject to authorization. By default when you log in, you can access user EXEC mode, which offers only a minimal number of commands. When you enter the **enable** command (or the **login** command when you use the local database), you can access privileged EXEC mode and advanced commands, including configuration commands. If you want to control the access to commands, the ASA lets you configure command authorization, where you can determine which commands are available to a user.

Supported Command Authorization Methods

You can use one of two command authorization methods:

- Local privilege levels—Configure the command privilege levels on the ASA. When a local, RADIUS, or LDAP (if you map LDAP attributes to RADIUS attributes) user authenticates for CLI access, the ASA places that user in the privilege level that is defined by the local database, RADIUS, or LDAP server. The user can access commands at the user privilege level and below. Note that all users access user EXEC mode when they first log in (commands at level 0 or 1). The user needs to authenticate again with the **enable** command to access privileged EXEC mode (commands at level 2 or higher), or they can log in with the **login** command (local database only).

Note You can use local command authorization without any users in the local database and without CLI or enable authentication. Instead, when you enter the **enable** command, you enter the system enable password, and the ASA places you in level 15. You can then create enable passwords for every level, so that when you enter **enable** *n* (2 to 15), the ASA places you in level *n*. These levels are not used unless you turn on local command authorization. (See the **enable** command for more information.)

- TACACS+ server privilege levels—On the TACACS+ server, configure the commands that a user or group can use after they authenticate for CLI access. Every command that a user enters at the CLI is checked with the TACACS+ server.

Security Contexts and Command Authorization

The following are important points to consider when implementing command authorization with multiple security contexts:

- AAA settings are discrete per context, not shared between contexts.

  When configuring command authorization, you must configure each security context separately. This provides you the opportunity to enforce different command authorizations for different security contexts.

  When switching between security contexts, administrators should be aware that the commands permitted for the username specified when they login may be different in the new context session or that command authorization may not be configured at all in the new context. Failure to understand that command authorizations may differ between security contexts could confuse an administrator. This behavior is further complicated by the next point.

- New context sessions started with the **changeto** command always use the default “enable_15” username as the administrator identity, regardless of what username was used in the previous context session. This behavior can lead to confusion if command authorization is not configured for the enable_15 user or if authorizations are different for the enable_15 user than for the user in the previous context session.

  This behavior also affects command accounting, which is useful only if you can accurately associate each command that is issued with a particular administrator. Because all administrators with permission to use the **changeto** command can use the enable_15 username in other contexts, command accounting records may not readily identify who was logged in as the enable_15 username. If you use different accounting servers for each context, tracking who was using the enable_15 username requires correlating the data from several servers.

  When configuring command authorization, consider the following:

  – An administrator with permission to use the **changeto** command effectively has permission to use all commands permitted to the enable_15 user in each of the other contexts.

– If you intend to authorize commands differently per context, ensure that in each context the enable_15 username is denied the use of commands that are also denied to administrators who are permitted to use the **changeto** command.

When switching between security contexts, administrators can exit privileged EXEC mode and enter the **enable** command again to use the username they need.

Note The system execution space does not support **aaa** commands; therefore, command authorization is not available in the system execution space.

Local Command Authorization Prerequisites

- Configure enable authentication for local, RADIUS, or LDAP authentication using the **aaa authentication enable console** command.

  Enable authentication is essential to maintain the username after the user accesses the **enable** command.

  Alternatively, you can use the **login** command (which is the same as the **enable** command with authentication), which requires no configuration. We do not recommend this option because it is not as secure as enable authentication.

  You can also use CLI authentication (**aaa authentication** {**ssh** | **telnet** | **serial**} **console**), but it is not required.

- You can use the **aaa authorization exec** command to enable support of administrative user privilege levels from RADIUS if RADIUS is used for authentication, but it is not required. This command also enables management authorization for local, RADIUS, LDAP (mapped), and TACACS+ users.
- See the following prerequisites for each user type:
  - Local database users—Configure each user in the local database at a privilege level from 0 to 15 using the **username** command.
  - RADIUS users—Configure the user with Cisco VSA CVPN3000-Privilege-Level with a value between 0 and 15.
  - LDAP users—Configure the user with a privilege level between 0 and 15, and then map the LDAP attribute to Cisco VAS CVPN3000-Privilege-Level using the **ldap map-attributes** command.
- See the **privilege** command for information about setting command privilege levels.

TACACS+ Command Authorization

If you enable TACACS+ command authorization, and a user enters a command at the CLI, the ASA sends the command and username to the TACACS+ server to determine if the command is authorized.

When configuring command authorization with a TACACS+ server, do not save your configuration until you are sure it works the way you want. If you get locked out because of a mistake, you can usually recover access by restarting the ASA.

Be sure that your TACACS+ system is completely stable and reliable. The necessary level of reliability typically requires that you have a fully redundant TACACS+ server system and fully redundant connectivity to the ASA. For example, in your TACACS+ server pool, include one server connected to interface 1, and another to interface 2. You can also configure local command authorization as a fallback method if the TACACS+ server is unavailable. In this case, you need to configure local users and command privilege levels.

See the CLI configuration guide for information about configuring the TACACS+ server.

TACACS+ Command Authorization Prerequisites

- Configure CLI authentication using the **aaa authentication** {**ssh** | **telnet** | **serial**} **console** command.
- Configure **enable** authentication using the **aaa authentication enable console** command.

Examples

The following example shows how to enable command authorization using a TACACS+ server group named tplus1:

```
hostname(config)# aaa authorization command tplus1
```

The following example shows how to configure administrative authorization to support fallback to the local user database if all servers in the tplus1 server group are unavailable.

```
hostname(config)# aaa authorization command tplus1 LOCAL
```

Related Commands

Command	Description
aaa authentication console	Enables CLI, ASDM, and enable authentication.
aaa authorization exec	Enables support of administrative user privilege levels from RADIUS.
aaa-server host	Configures host-related attributes.
aaa-server	Configures group-related server attributes.
enable	Enters privileged EXEC mode.
ldap map-attributes	Maps LDAP attributes to RADIUS attributes that the ASA can use.
login	Enters privileged EXEC mode using the local database for authentication.
service-type	Limits local database user CLI, ASDM, and enable access.
show running-config aaa	Displays the AAA configuration.

aaa authorization exec

To enable management authorization, use the **aaa authorization exec** command o in global configuration mode. To disable management authorization, use the **no** form of these commands.

aaa authorization exec {**authentication-server** | **LOCAL**}

no aaa authorization exec {**authentication-server** | **LOCAL**}

Syntax Description

authentication-server	Indicates that the authorization attributes will be retrieved from the server that was used to authenticate the user.
LOCAL	Indicates that the authorization attributes will be retrieved from the local user database of the ASA, regardless of how authentication is done.

Defaults

By default, this command is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
8.2(2)	The **LOCAL** option was added.

Usage Guidelines

When using the **aaa authorization exec** command, the service-type credentials of the user are checked before allowing console access.

When you disable management authorization with the **no aaa authorization exec** command, note the following:

- The service-type credentials of the user are not checked before allowing console access.
- If command authorization is configured, privilege-level attributes are still applied if they are found in the AAA server for RADIUS, LDAP, and TACACS+ users.

If you configure **aaa authentication console** commands to authenticate users when they access the CLI, ASDM, or the **enable** command, then the **aaa authorization exec** command can limit management access depending on the user configuration.

Note Serial access is not included in management authorization, so if you configure **aaa authentication serial console**, then any user who authenticates can access the console port.

To configure the user for management authorization, see the following requirements for each AAA server type or local user:

- LDAP mapped users—To map LDAP attributes, see the **ldap attribute-map** command.
- RADIUS users—Use the IETF RADIUS numeric **service-type** attribute, which maps to one of the following values:
  - Service-Type 5 (Outbound) denies management access. The user cannot use any services specified by the **aaa authentication console** commands (excluding the **serial** keyword; serial access is allowed). Remote access (IPsec and SSL) users can still authenticate and terminate their remote access sessions.
  - Service-Type 6 (Administrative) allows full access to any services specified by the **aaa authentication console** commands.
  - Service-Type 7 (NAS prompt) allows access to the CLI when you configure the **aaa authentication {telnet | ssh} console** command, but denies ASDM configuration access if you configure the **aaa authentication http console** command. ASDM monitoring access is allowed. If you configure **enable** authentication with the **aaa authentication enable console** command, the user cannot access privileged EXEC mode using the **enable** command.

Note The only recognized service-types are Login (1), Framed (2), Administrative (6), and NAS-Prompt (7). Using any other service-types results in denied access.

- TACACS+ users—Request authorization with the "service=shell" entry, and the server responds with PASS or FAIL, as follows:
  - PASS, privilege level 1 allows full access to any services specified by the **aaa authentication console** commands.
  - PASS, privilege level 2 and higher allows access to the CLI when you configure the **aaa authentication {telnet | ssh} console** command, but denies ASDM configuration access if you configure the **aaa authentication http console** command. ASDM monitoring access is allowed. If you configure enable authentication with the **aaa authentication enable console** command, the user cannot access privileged EXEC mode using the **enable** command.
  - FAIL denies management access. The user cannot use any services specified by the **aaa authentication console** commands (excluding the **serial** keyword; serial access is allowed).
- Local users—Set the **service-type** command, which is in the username configuration mode of the **username** command. By default, the **service-type** is **admin**, which allows full access to any services specified by the **aaa authentication console** commands.

Examples

The following example enables management authorization using the local database:

```
hostname(config)# aaa authorization exec LOCAL
```

Related Commands

Command	Description
aaa authentication console	Enables console authentication.
ldap attribute-map	Maps LDAP attributes.

service-type	Limits CLI access for a local user .
show running-config aaa	Displays the AAA configuration.

aaa authorization include, exclude

To enable authorization for connections through the ASA, use the **aaa authorization include** command in global configuration mode. To disable authorization, use the **no** form of this command. To exclude addresses from authorization, use the **aaa authorization exclude** command. To not exclude addresses from authorization, use the **no** form of this command.

aaa authorization {include | exclude} *service interface_name inside_ip inside_mask* [*outside_ip outside_mask*] *server_tag*

no aaa authorization {include | exclude} *service interface_name inside_ip inside_mask* [*outside_ip outside_mask*] *server_tag*

Syntax Description

exclude	Excludes the specified service and address from authorization if it was already specified by an **include** command.
include	Specifies the services and IP addresses that require authorization. Traffic that is not specified by an **include** statement is not processed.
inside_ip	Specifies the IP address on the higher security interface. This address might be the source or the destination address, depending on the interface to which you apply this command. If you apply the command to the lower security interface, then this address is the destination address. If you apply the command to the higher security interface, then this address is the source address. Use 0 to mean all hosts.
inside_mask	Specifies the network mask for the inside IP address. Use 0 if the IP address is 0. Use 255.255.255.255 for a host.
interface_name	Specifies the interface name from which users require authorization.
outside_ip	(Optional) Specifies the IP address on the lower security interface. This address might be the source or the destination address, depending on the interface to which you apply this command. If you apply the command to the lower security interface, then this address is the source address. If you apply the command to the higher security interface, then this address is the destination address. Use 0 to mean all hosts.
outside_mask	(Optional) Specifies the network mask for the outside IP address. Use 0 if the IP address is 0. Use 255.255.255.255 for a host.

server_tag	Specifies the AAA server group defined by the **aaa-server** command.
service	Specifies the services that require authorization. You can specify one of the following values: • **any** or **tcp/0** (specifies all TCP traffic) • ftp • http • **https** • **ssh** • telnet • **tcp/***port*[**-***port*] • **udp/***port*[**-***port*] • **icmp/***type* • *protocol*[**/***port*[**-***port*]] **Note** Specifying a port range might produce unexpected results at the authorization server. The ASA sends the port range to the server as a string, with the expectation that the server will parse it out into specific ports. Not all servers do this. In addition, you might want users to be authorized on specific services, which does not occur if a range is accepted.

Defaults

An IP address of **0** means "all hosts." Setting the local IP address to **0** lets the authorization server decide which hosts are authorized.

Fallback to the local database for authorization is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	The **exclude** parameter allows the user to specify a port to exclude to a specific host or hosts.

Usage Guidelines

To enable authorization for traffic that is specified by an ACL, use the **aaa authorization match** command. You cannot use the **match** command in the same configuration as the **include** and **exclude** commands. We suggest that you use the **match** command instead of the **include** and **exclude** commands; the **include** and **exclude** commands are not supported by ASDM.

You cannot use the **aaa authorization include** and **exclude** commands between same-security interfaces. For that scenario, you must use the **aaa authorization match** command.

You can configure the ASA to perform network access authorization with TACACS+. Authentication and authorization statements are independent; however, any unauthenticated traffic matched by an authorization statement will be denied. For authorization to succeed, a user must first authenticate with the ASA. Because a user at a given IP address only needs to authenticate one time for all rules and types, if the authentication session has not expired, authorization can occur even if the traffic is matched by an authentication statement.

After a user authenticates, the ASA checks the authorization rules for matching traffic. If the traffic matches the authorization statement, the ASA sends the username to the TACACS+ server. The TACACS+ server responds to the ASA with a permit or a deny for that traffic, based on the user profile. The ASA enforces the authorization rule in the response.

See the documentation for your TACACS+ server for information about configuring network access authorizations for a user.

For each IP address, one **aaa authorization include** command is permitted.

If the first attempt at authorization fails and a second attempt causes a timeout, use the **service resetinbound** command to reset the client that failed the authorization so that it will not retransmit any connections. An example authorization timeout message in Telnet follows.

```
Unable to connect to remote host: Connection timed out
```

Note Specifying a port range might produce unexpected results at the authorization server. The ASA sends the port range to the server as a string, with the expectation that the server will parse it out into specific ports. Not all servers do this. In addition, you might want users to be authorized on specific services, which does not occur if a range is accepted.

Examples

The following example uses the TACACS+ protocol:

```
hostname(config)# aaa-server tplus1 protocol tacacs+
hostname(config)# aaa-server tplus1 (inside) host 10.1.1.10 thekey timeout 20
hostname(config)# aaa authentication include any inside 0 0 0 0 tplus1
hostname(config)# aaa authorization include any inside 0 0 0 0
hostname(config)# aaa accounting include any inside 0 0 0 0 tplus1
hostname(config)# aaa authentication ssh console tplus1
```

In this example, the first command statement creates a server group named tplus1 and specifies the TACACS+ protocol for use with this group. The second command specifies that the authentication server with the IP address 10.1.1.10 resides on the inside interface and is in the tplus1 server group. The next three command statements specify that any users starting connections through the outside interface to any foreign host will be authenticated using the tplus1 server group, that the users who are successfully authenticated are authorized to use any service, and that all outbound connection information will be logged in the accounting database. The last command statement specifies that SSH access to the ASA console requires authentication from the tplus1 server group.

The following example enables authorization for DNS lookups from the outside interface:

```
hostname(config)# aaa authorization include udp/53 outside 0.0.0.0 0.0.0.0
```

The following example enables authorization of ICMP echo-reply packets arriving at the inside interface from inside hosts:

```
hostname(config)# aaa authorization include 1/0 inside 0.0.0.0 0.0.0.0
```

This means that users cannot ping external hosts if they have not been authenticated using Telnet, HTTP, or FTP.

The following example enables authorization only for ICMP echoes (pings) that arrive at the inside interface from an inside host:

```
hostname(config)# aaa authorization include 1/8 inside 0.0.0.0 0.0.0.0
```

Related Commands

Command	Description
aaa authorization command	Specifies whether or not command execution is subject to authorization, or configures administrative authorization to support fallback to the local user database if all servers in the specified server group are disabled.
aaa authorization match	Enables or disables the LOCAL or TACACS+ user authorization services for a specific access-list command name.
clear configure aaa	Removes or resets the configured AAA accounting values.
show running-config aaa	Displays the AAA configuration.

aaa authorization match

To enable authorization for connections through the ASA, use the **aaa authorization match** command in global configuration mode. To disable authorization, use the **no** form of this command.

aaa authorization match *acl_name interface_name server_tag*

no aaa authorization match *acl_name interface_name server_tag*

Syntax Description

acl_name	Specifies an extended ACL name. See the **access-list extended** command. The **permit** ACEs mark matching traffic for authorization, while **deny** entries exclude matching traffic from authorization.
interface_name	Specifies the interface name from which users require authentication.
server_tag	Specifies the AAA server group tag as defined by the **aaa-server** command.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You cannot use the **aaa authorization match** command in the same configuration as the **include** and **exclude** commands. We suggest that you use the **match** command instead of the **include** and **exclude** commands; the **include** and **exclude** commands are not supported by ASDM.

You can configure the ASA to perform network access authorization with TACACS+. RADIUS authorization with the **aaa authorization match** command only supports authorization of VPN management connections to the ASA.

Authentication and authorization statements are independent; however, any unauthenticated traffic matched by an authorization statement will be denied. For authorization to succeed, a user must first authenticate with the ASA. Because a user at a given IP address only needs to authenticate one time for all rules and types, if the authentication session has not expired, authorization can occur even if the traffic is matched by an authentication statement.

After a user authenticates, the ASA checks the authorization rules for matching traffic. If the traffic matches the authorization statement, the ASA sends the username to the TACACS+ server. The TACACS+ server responds to the ASA with a permit or a deny for that traffic, based on the user profile. The ASA enforces the authorization rule in the response.

See the documentation for your TACACS+ server for information about configuring network access authorizations for a user.

If the first attempt at authorization fails and a second attempt causes a timeout, use the **service resetinbound** command to reset the client that failed the authorization so that it will not retransmit any connections. An example authorization timeout message in Telnet follows.

```
Unable to connect to remote host: Connection timed out
```

Note Specifying a port range might produce unexpected results at the authorization server. The ASA sends the port range to the server as a string, with the expectation that the server will parse it out into specific ports. Not all servers do this. In addition, you might want users to be authorized on specific services, which does not occur if a range is accepted.

Examples

The following example uses the tplus1 server group with the **aaa** commands:

```
hostname(config)# aaa-server tplus1 protocol tacacs+
hostname(config)# aaa-server tplus1 (inside) host 10.1.1.10 thekey timeout 20
hostname(config)# aaa authentication include any inside 0 0 0 0 tplus1
hostname(config)# aaa accounting include any inside 0 0 0 0 tplus1
hostname(config)# aaa authorization match myacl inside tplus1
```

In this example, the first command statement defines the tplus1 server group as a TACACS+ group. The second command specifies that the authentication server with the IP address 10.1.1.10 resides on the inside interface and is in the tplus1 server group. The next two command statements specify that any connections traversing the inside interface to any foreign host are authenticated using the tplus1 server group, and that all these connections are logged in the accounting database. The last command statement specifies that any connections that match the ACEs in myacl are authorized by the AAA servers in the tplus1 server group.

Related Commands

Command	Description
aaa authorization	Enables or disables user authorization.
clear configure aaa	Resets all aaa configuration parameters to the default values.
clear uauth	Deletes AAA authorization and authentication caches for one user or all users, which forces users to reauthenticate the next time that they create a connection.
show running-config aaa	Displays the AAA configuration.
show uauth	Displays the username provided to the authorization server for authentication and authorization purposes, the IP address to which the username is bound, and whether the user is only authenticated or has cached services.

aaa local authentication attempts max-fail

To limit the number of consecutive failed local login attempts that the ASA allows any given user account (with the exception of users with a privilege level of 15; this feature does not affect level 15 users), use the **aaa local authentication attempts max-fail** command in global configuration mode. To disable this feature and allow an unlimited number of consecutive failed local login attempts, use the **no** form of this command.

aaa local authentication attempts max-fail *number*

Syntax Description

number	The maximum number of times a user can enter a wrong password before being locked out. This number can be in the range 1-16.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command only affects authentication with the local user database. If you omit this command, there is no limit on the number of times a user can enter an incorrect password.

After a user makes the configured number of attempts with the wrong password, the user is locked out and cannot log in successfully until the administrator unlocks the username. Locking or unlocking a username results in a syslog message.

Users with a privilege level of 15 are not affected by this command; they cannot be locked out.

The number of failed attempts resets to zero and the lockout status resets to No when the user successfully authenticates or when the ASA reboots.

Examples

The following example shows use of the **aaa local authentication attempts max-limits** command to set the maximum number of failed attempts allowed to 2:

```
hostname(config)# aaa local authentication attempts max-limits 2
```

Related Commands

Command	Description
clear aaa local user lockout	Clears the lockout status of the specified users and set their failed-attempts counter to 0.
clear aaa local user fail-attempts	Resets the number of failed user authentication attempts to zero without modifying the user locked-out status.
show aaa local user	Shows the list of usernames that are currently locked.

aaa mac-exempt

To specify the use of a predefined list of MAC addresses to exempt from authentication and authorization, use the **aaa mac-exempt** command in global configuration mode. To disable the use of a list of MAC addresses, use the **no** form of this command.

aaa mac-exempt match *id*

no aaa mac-exempt match *id*

Syntax Description

id	Specifies a MAC list number configured with the **mac-list** command.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You can only add one **aaa mac-exempt** command. Configure the MAC list number using the **mac-list** command before using the **aaa mac-exempt** command. Permit entries in the MAC list exempt the MAC addresses from authentication and authorization, while deny entries require authentication and authorization for the MAC address, if enabled. Because you can only add one instance of the **aaa mac-exempt** command, be sure that the MAC list includes all the MAC addresses that you want to exempt.

Examples

The following example bypasses authentication for a single MAC address:

```
hostname(config)# mac-list abc permit 00a0.c95d.0282 ffff.ffff.ffff
hostname(config)# aaa mac-exempt match abc
```

The following entry bypasses authentication for all Cisco IP Phones, which have the hardware ID 0003.E3:

```
hostname(config)# mac-list acd permit 0003.E300.0000 FFFF.FF00.0000
hostname(config)# aaa mac-exempt match acd
```

The following example bypasses authentication for a a group of MAC addresses except for 00a0.c95d.02b2:

```
hostname(config)# mac-list 1 deny 00a0.c95d.0282 ffff.ffff.ffff
hostname(config)# mac-list 1 permit 00a0.c95d.0000 ffff.ffff.0000
hostname(config)# aaa mac-exempt match 1
```

Related Commands

Command	Description
aaa authentication	Enables user authentication.
aaa authorization	Enables user authorization services.
aaa mac-exempt	Exempts a list of MAC addresses from authentication and authorization.
show running-config mac-list	Displays a list of MAC addresses previously specified in the **mac-list** command.
mac-list	Specifies a list of MAC addresses to be used to exempt MAC addresses from authentication and/or authorization.

aaa proxy-limit

To limit the number of concurrent authentication attempts (at the same time) for a given IP address, use the **aaa proxy-limit** command in global configuration mode. To return to the default proxy-limit value, use the **no** form of this command.

aaa proxy-limit *proxy_limit*

aaa proxy-limit disable

no aaa proxy-limit

Syntax Description

disable	Specifies that no proxies are allowed.
proxy_limit	Specifies the number of concurrent proxy connections allowed per user, from 1 to 128.

Defaults

The default proxy-limit value is 16.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

If a source address is a proxy server, consider excluding this IP address from authentication or increasing the number of allowable outstanding AAA requests.

For example, if two users were at the same IP address (perhaps connected to a terminal server) and both open a browser or connection and try to begin authenticating at exactly the same time, only one would be allowed, and the second would be blocked.

The first session from that IP address will be proxied and sent the auththentication request, while the other session would time out. This has nothing to do with how many connections a single username has.

Examples

The following example shows how to set the maximum number of outstanding authentication attempts (at the same time) for a given IP address:

```
hostname(config)# aaa proxy-limit 6
```

Related Commands

Command	Description
aaa authentication	Enables, disables, or views LOCAL, TACACS+, or RADIUS user authentication, on a server designated by the **aaa-server** command, or ASDM user authentication.
aaa authorization	Enables or disables LOCAL or TACACS+ user authorization services.
aaa-server host	Specifies a AAA server.
clear configure aaa	Removes or resets the configured AAA accounting values.
show running-config aaa	Displays the AAA configuration.

aaa-server

To create a AAA server group and configure AAA server parameters that are group-specific and common to all group hosts, use the **aaa-server** command in global configuration mode. To remove the designated group, use the **no** form of this command.

aaa-server *server-tag* **protocol** *server-protocol*

no aaa-server *server-tag* **protocol** *server-protocol*

Syntax Description

protocol *server-protocol*	Specifies the AAA protocol that the servers in the group support: • **http-form** • **kerberos** • **ldap** • **nt** • **radius** • **sdi** • **tacacs+**
server-tag	Specifies the server group name, which is matched by the name specified by the **aaa-server host** commands. Other AAA commands make reference to the AAA server group name.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.1(1)	The http-form protocol was added.
8.2(2)	The maximum number of AAA server groups was increased from 15 to 100 for single mode.
8.4(2)	The **ad-agent-mode** option in aaa-server group configuration mode was added.

Usage Guidelines

You can have up to 100 server groups in single mode or 4 server groups per context in multiple mode. Each group can have up to 15 servers in single mode or 4 servers in multiple mode. When a user logs in, the servers are accessed one at a time starting with the first server you specify in the configuration, until a server responds.

You control AAA server configuration by defining a AAA server group protocol with the **aaa-server** command, and then you add servers to the group using the **aaa-server host** command. When you enter the **aaa-server protocol** command, you enter aaa-server group configuration mode.

If you are using the RADIUS protocol and are in the aaa-server group configuration mode, note the following:

- To enable multi-session accounting for clientless SSL and AnyConnect sessions, enter the **interim-accounting-update** option. If you choose this option, interim accounting records are sent to the RADIUS server in addition to the start and stop records.
- To specify the shared secret between the ASA and the AD agent and indicate that a RADIUS server group includes AD agents that are not full-function RADIUS servers, enter the **ad-agent-mode** option. Only a RADIUS server group that has been configured using this option can be associated with user identity. As a result, the **test aaa-server** {**authentication** | **authorization**} *aaa-server-group* command is not available when a RADIUS server group that is not configured using the **ad-agent-mode** option is specified.

Examples

The following example shows the use of the **aaa-server** command to modify details of a TACACS+ server group configuration:

```
hostname(config)# aaa-server svrgrp1 protocol tacacs+
hostname(config-aaa-server-group)# accounting-mode simultaneous
hostname(config-aaa-server-group)# reactivation mode timed
hostname(config-aaa-server-group)# max-failed attempts 2
```

Related Commands

Command	Description
accounting-mode	Indicates whether accounting messages are sent to a single server (single mode) or sent to all servers in the group (simultaneous mode).
reactivation-mode	Specifes the method by which failed servers are reactivated.
max-failed-attempts	Specifies the number of failures that will be tolerated for any given server in the server group before that server is deactivated.
clear configure aaa-server	Removes all AAA server configurations.
show running-config aaa-server	Displays AAA server statistics for all AAA servers, for a particular server group, for a particular server within a particular group, or for a particular protocol.

aaa-server active, fail

To reactivate a AAA server that is marked failed, use the **aaa-server active** command in privileged EXEC mode. To fail an active server, use the **aaa-server fail** command in privileged EXEC mode.

aaa-server *server_tag* [**active | fail**] **host** {*server_ip* | *name*}

Syntax Description

active	Sets the server to an active state.
fail	Sets the server to a failed state.
host	Specifies the host IP address name or IP address.
name	Specifies the name of the server using either a name assigned locally using the **name** command or a DNS name. Maximum characters is 128 for DNS names and 63 characters for names assigned using the **name** command.
server_ip	Specifies the IP address of the AAA server.
server_tag	Specifies a symbolic name of the server group, which is matched by the name specified by the **aaa-server** command.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Without this command, servers in a group that failed remain in a failed state until all servers in the group fail, after which all are reactivated.

Examples

The following example shows the state for server 192.168.125.60 and manually reactivates it:

```
hostname# show aaa-server group1 host 192.68.125.60
Server Group:  group1
Server Protocol: RADIUS
Server Address:  192.68.125.60
Server port:  1645
Server status: FAILED. Server disabled at 11:10:08 UTC  Fri Aug 22
...
hostname# aaa-server active host 192.168.125.60
```

```
hostname# show aaa-server group1 host 192.68.125.60
Server Group:  group1
Server Protocol: RADIUS
Server Address:  192.68.125.60
Server port:  1645
Server status: ACTIVE (admin initiated). Last Transaction at 11:40:09 UTC  Fri Aug 22
...
```

Related Commands

Command	Description
aaa-server	Creates and modifies AAA server groups.
clear configure aaa-server	Removes all AAA-server configuration.
show running-config aaa-server	Displays AAA server statistics for all AAA servers, for a particular server group, for a particular server within a particular group, or for a particular protocol.

aaa-server host

To configure a AAA server as part of a AAA server group and to configure AAA server parameters that are host-specific, use the **aaa-server host** command in global configuration mode. To remove a host configuration, use the **no** form of this command.

aaa-server *server-tag* [(*interface-name*)] **host** {*server-ip* | *name*} [*key*] [**timeout** *seconds*]

no aaa-server *server-tag* [(*interface-name*)] **host** {*server-ip* | *name*} [*key*] [**timeout** *seconds*]

Syntax Description

(*interface-name*)	(Optional) Specifies the network interface where the authentication server resides. The parentheses are required in this parameter. If you do not specify an interface, the default is **inside**, if available.
key	(Optional) Specifies a case-sensitive, alphanumeric keyword of up to 127 characters that is the same value as the key on the RADIUS or TACACS+ server. Any characters entered past 127 are ignored. The key is used between the ASA and the server for encrypting data between them. the key must be the same on both the ASA and server systems. Spaces are not permitted in the key, but other special characters are allowed. You can add or modify the key using the **key** command in host mode.
name	Specifies the name of the server using either a name assigned locally using the **name** command or a DNS name. Maximum characters is 128 for DNS names and 63 characters for names assigned using the **name** command.
server-ip	Specifies the IP address of the AAA server.
server-tag	Specifies a symbolic name of the server group, which is matched by the name specified by the **aaa-server** command.
timeout *seconds*	(Optional) The timeout interval for the request. This is the time after which the ASA gives up on the request to the primary AAA server. If there is a standby AAA server, the ASA sends the request to the backup server. You can modify the timeout interval using the **timeout** command in host configuration mode.

Defaults

The default timeout value is 10 seconds.

The default interface is inside.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	Support for DNS names was added.
9.0(1)	Support for user identity was added.

Usage Guidelines

You control AAA server configuration by defining a AAA server group with the **aaa-server** command, and then you add servers to the group using the **aaa-server host** command. When you use the **aaa-server host** command, you enter the aaa-server host configuration mode, from which you can specify and manage host-specific AAA server connection data.

You can have up to 15 server groups in single mode or 4 server groups per context in multiple mode. Each group can have up to 16 servers in single mode or 4 servers in multiple mode. When a user logs in, the servers are accessed one at a time starting with the first server that you specify in the configuration, until a server responds.

Examples

The following example configures a Kerberos AAA server group named “watchdogs”, adds a AAA server to the group, and defines the Kerberos realm for the server:

Note Kerberos realm names use numbers and upper-case letters only. Although the ASA accepts lower-case letters for a realm name, it does not translate lower-case letters to upper-case letters. Be sure to use upper-case letters only.

```
hostname(config)# aaa-server watchdogs protocol kerberos
hostname(config-aaa-server-group)# exit
hostname(config)# aaa-server watchdogs host 192.168.3.4
hostname(config-aaa-server-host)# kerberos-realm EXAMPLE.COM
```

The following example configures an SDI AAA server group named “svrgrp1”, and then adds a AAA server to the group, sets the timeout interval to 6 seconds, sets the retry interval to 7 seconds, and configures the SDI version to version 5:

```
hostname(config)# aaa-server svrgrp1 protocol sdi
hostname(config-aaa-server-group)# exit
hostname(config)# aaa-server svrgrp1 host 192.168.3.4
hostname(config-aaa-server-host)# timeout 6
hostname(config-aaa-server-host)# retry-interval 7
hostname(config-aaa-server-host)# sdi-version sdi-5
```

The following example shows how to narrow down the search path to the targeted groups when you use the **aaa-server** *aaa_server_group_tag* command for LDAP search:

```
hostname(config)# aaa-server CISCO_AD_SERVER protocol ldap
hostname(config)# aaa-server CISCO_AD_SERVER host 10.1.1.1
hostname(config-aaa-server-host)# server-port 636
hostname(config-aaa-server-host)# ldap-base-dn DC=cisco,DC=com
hostname(config-aaa-server-host)# ldap-group-base-dn OU=Cisco Groups,DC=cisco,DC=com
hostname(config-aaa-server-host)# ldap-scope subtree
hostname(config-aaa-server-host)# ldap-login-password *
hostname(config-aaa-server-host)# ldap-login-dn CISCO\username1
hostname(config-aaa-server-host)# ldap-over-ssl enable
hostname(config-aaa-server-host)# server-type microsoft
```

Note When the **ldap-group-base-dn** command is specified, all groups must reside under it in the LDAP directory hierarchy and no group can reside outside this path.

The **ldap-group-base-dn** command takes effect only when at least one activated user-identity based policy exists.

The **server-type microsoft** command, which is not the default, must be configured.

The first **aaa-server** *aaa_server_group_tag* **host** command is used for LDAP operations.

Related Commands

Command	Description
aaa-server	Creates and modifies AAA server groups.
clear configure aaa-server	Removes all AAA server configurations.
show running-config aaa-server	Displays AAA server statistics for all AAA servers, for a particular server group, for a particular server within a particular group, or for a particular protocol.

absolute

To define an absolute time when a time range is in effect, use the **absolute** command in time-range configuration mode. To not specify a time for a time range, use the **no** form of this command.

absolute [**end** *time date*] [**start** *time date*]

no absolute

Syntax Description

date	(Optional) Specifies the date in the format, day month year; for example, 1 January 2006. The valid range of years is 1993 through 2035.
end	(Optional) Specifies the end of the time range.
start	(Optional) Specifies the start of the time range.
time	(Optional) Specifies the time in the format HH:MM. For example, 8:00 is 8:00 a.m. and 20:00 is 8:00 p.m.

Defaults

If no start time and date are specified, the permit or deny statement is in effect immediately and always on. Similarly, the maximum end time is 23:59 31 December 2035. If no end time and date are specified, the associated permit or deny statement is in effect indefinitely.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Time-range configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To implement a time-based ACL, use the **time-range** command to define specific times of the day and week. Then use the **access-list extended time-range** command to bind the time range to an ACL.

Examples

The following example activates an ACL at 8:00 a.m. on 1 January 2006:

```
hostname(config-time-range)# absolute start 8:00 1 January 2006

Because no end time and date are specified, the associated ACL is in effect indefinitely.
```

Related Commands

Command	Description
access-list extended	Configures a policy for permitting or denying IP traffic through the ASA.
default	Restores default settings for the **time-range** command **absolute** and **periodic** keywords.
periodic	Specifies a recurring (weekly) time range for functions that support the time-range feature.
time-range	Defines access control to the ASA based on time.

accept-subordinates

To configure the ASA to accept subordinate CA certificates if delivered during phase one IKE exchange when not previously installed on the device, use the **accept-subordinates** command in crypto ca trustpoint configuration mode. To restore the default setting, use the **no** form of the command.

accept-subordinates

no accept-subordinates

Syntax Description

This command has no arguments or keywords.

Defaults

The default setting is on (subordinate certificates are accepted).

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Crypto ca trustpoint configuration	•	•	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

During phase 1 processing, an IKE peer might pass both a subordinate certificate and an identity certificate. The subordinate certificate might not be installed on the ASA. This command lets an administrator support subordinate CA certificates that are not configured as trustpoints on the device without requiring that all subordinate CA certificates of all established trustpoints be acceptable; in other words, this command lets the device authenticate a certificate chain without installing the entire chain locally.

Examples

The following example enters crypto ca trustpoint configuration mode for trustpoint central, and allows the ASA to accept subordinate certificates for trustpoint central:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# accept-subordinates
hostname(ca-trustpoint)#
```

Related Commands

Command	Description
crypto ca trustpoint	Enters trustpoint configuration mode.
default enrollment	Returns enrollment parameters to their defaults.

access-group

To bind an ACL to a single interface, use the **access-group** command in global configuration mode. To unbind an ACL from the interface, use the **no** form of this command.

access-group *access-list* {**in | out**} **interface** *interface_name* [***per-user-override*** **|** ***control-plane***]

no access-group *access-list* {**in | out**} **interface** *interface_name*

To apply a single set of global rules to all interfaces with the single command, use the **access-group global** command in global configuration mode. To remove the global rules from all configured interfaces, use the **no** form of this command.

access-group *access-list* [**global**]

no access-group *access-list* **[global**]

Syntax Description

access-list	ACL *id.*
control-plane	(Optional) Specifies whether or not the rule is for to-the-box traffic. For example, you can use this option to block certain remote IP addresses from initiating a VPN session to the ASA by blocking ISAKMP. Access rules for to-the-box management traffic (defined by such commands as **http**, **ssh**, or **telnet**) have higher precedence than an ACL applied with the **control-plane** option. Therefore, such permitted management traffic will be allowed to come in even if explicitly denied by the to-the-box ACL.
global	(Optional) Applies an ACL to all configured interfaces.
in	Filters the inbound packets at the specified interface.
interface *interface-name*	Name of the network interface.
out	Filters the outbound packets at the specified interface.
per-user-override	(Optional) Allows downloadable user ACLs to override the ACL applied to the interface.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.3(1)	This command was modified to support global policies.

Usage Guidelines

Interface-specific access-group rules have higher priority that global rules, so at the time of packet classification, interface-specific rules are processed before global rules.

Usage Guidelines for Interface-specific Rules

The **access-group** command binds an ACL to an interface. The ACL is applied to traffic inbound to an interface. If you enter the **permit** option in an **access-list** command statement, the ASA continues to process the packet. If you enter the **deny** option in an **access-list** command statement, the ASA discards the packet and generates the following syslog message.

`%ASA-4-106019: IP packet from` *`source_addr`* `to` *`destination_addr`*`, protocol` *`protocol`* `received from interface` *`interface_name`* `deny by access-group` *`id`*

The **per-user-override** option allows downloaded ACLs to override the ACL applied to the interface. If the **per-user-override** option is not present, the ASA preserves the existing filtering behavior. When **per-user-override** is present, the ASA allows the **permit** or **deny** status from the per-user access-list (if one is downloaded) associated to a user to override the permit or deny status from the **access-group** command associated ACL. Additionally, the following rules are observed:

- At the time a packet arrives, if there is no per-user ACL associated with the packet, the interface ACL will be applied.
- The per-user ACL is governed by the timeout value specified by the **uauth** option of the **timeout** command but it can be overridden by the AAA per-user session timeout value.
- Existing ACL log behavior will be the same. For example, if user traffic is denied because of a per-user ACL, syslog message 109025 will be logged. If user traffic is permitted, no syslog message is generated. The log option in the per-user access-list will have no effect.

For VPN remote access traffic, the behavior depends on whether there is a **vpn-filter** applied in the group policy and whether you set the **per-user-override** option:

- No **per-user-override**, no **vpn-filter**—Traffic is matched against the interface ACL (per the default **no sysopt connection permit-vpn** command).
- No **per-user-override**, **vpn-filter**—Traffic is matched first against the interface ACL, then against the VPN filter.
- **per-user-override**, **vpn-filter**—Traffic is matched against the VPN filter only.

Always use the **access-list** command with the **access-group** command.

The **access-group** command binds an ACL to an interface. The **in** keyword applies the ACL to the traffic on the specified interface. The **out** keyword applies the ACL to the outbound traffic.

Note If all of the functional entries (the permit and deny statements) are removed from an ACL that is referenced by one or more **access-group** commands, the **access-group** commands are automatically removed from the configuration. The **access-group** command cannot reference empty ACLs or ACLs that contain only a remark.

Usage Guidelines for Global Rules

The **access-group global** command applies a single set of global rules on all traffic, no matter which interface the traffic arrives at the ASA.

Global rules for the **access-group global** command support extended ACLs only.

All global rules apply only to traffic in the ingress (input) direction. Global rules do not support egress (output) traffic.

Global rules for **access-group global** do not support the **control-plane** nor the **per-user-override** options that are supported in interface-specific access rules.

If global rules are configured in conjunction with interface access rules, then the interface access rule, which is specific, is processed before the global access rule, which is general.

Examples

The following example shows how to use the **access-group global** command to apply an ACL to all configured interfaces:

```
hostname(config)# access-list acl-1 extended permit ip host 10.1.2.2 host 10.2.2.2
hostname(config)# access-list acl-2 extended deny ip any any

hostname(config)# access-group acl-2
hostname(config)# access-group acl-1 in interface outside

hostname(config)# show run access-group acl-2
hostname(config)# access-group acl-1 in interface outside

hostname(config)# access-group acl-2 global
```

The preceding access-group configuration adds the following rules in the classification table (output from the **show asp table classify** command):

```
in  id=0xb1f90068, priority=13, domain=permit, deny=false
        hits=0, user_data=0xaece1ac0, cs_id=0x0, flags=0x0, protocol=0
        src ip=10.1.2.2, mask=255.255.255.255, port=0
        dst ip=10.2.2.2, mask=255.255.255.255, port=0, dscp=0x0
        input_ifc=outside, output_ifc=any
in  id=0xb1f2a250, priority=12, domain=permit, deny=true
        hits=0, user_data=0xaece1b40, cs_id=0x0, flags=0x0, protocol=0
        src ip=0.0.0.0, mask=0.0.0.0, port=0
        dst ip=0.0.0.0, mask=0.0.0.0, port=0, dscp=0x0
        input_ifc=any, output_ifc=any
in  id=0xb1f90100, priority=11, domain=permit, deny=true
        hits=0, user_data=0x5, cs_id=0x0, flags=0x0, protocol=0
        src ip=0.0.0.0, mask=0.0.0.0, port=0
        dst ip=0.0.0.0, mask=0.0.0.0, port=0, dscp=0x0
        input_ifc=outside, output_ifc=any
in  id=0xb1f2a3f8, priority=11, domain=permit, deny=true
        hits=0, user_data=0x5, cs_id=0x0, flags=0x0, protocol=0
        src ip=0.0.0.0, mask=0.0.0.0, port=0
        dst ip=0.0.0.0, mask=0.0.0.0, port=0, dscp=0x0
        input_ifc=any, output_ifc=any
```

The preceding rule passes traffic from 10.1.2.2 to 10.2.2.2 on the output interface and drops traffic from 10.1.1.10 to 10.2.2.20 on the output interface due to the global deny rule.

The following example allows global access to an HTTP server (with the IP address 10.2.2.2) in the DMZ from anywhere:

```
hostname(config)# access-list global_acl permit tcp any host 10.2.2.2 eq 80
hostname(config)# access-group global_acl global
```

The preceding rule permits the HTTP connection from outside host 10.1.2.2 to host 10.2.2.2, and it permits the HTTP connection from the inside host 192.168.0.0 to host 10.2.2.2.

Note If you have no global policy support, the preceding ACL must be applied to all applicable interfaces.

The following example shows how a global policy and an interface policy can be used together. The example allows access to a server (with the IP address 10.2.2.2) from any inside host, but it denies access to the server from any other host. The interface policy takes precedence.

```
hostname(config)# access-list inside_acl permit tcp any host 10.2.2.2 eq 23
hostname(config)# access-list global_acl deny ip any host 10.2.2.2
hostname(config)# access-group inside_acl in interface inside
hostname(config)# access-group global_acl global
```

The preceding rule denies the SSH connection from outside host 10.1.2.2 to host 10.2.2.2, and it permits the SSH connection from the inside host 192.168.0.0 to host 10.2.2..2.

The following example shows how NAT and the global access control policy work together. The example permits one HTTP connection from outside host 10.1.2.2 to host 10.2.2.2, permits another HTTP connection from inside host 192.168.0.0 to host 10.2.2.2, and denies (by implicit rule), one HTTP connection from outside host 10.255.255.255 to host 172.31.255.255.

```
hostname(config)# object network dmz-server host 10.1.1.2
hostname(config)# nat (any, any) static 10.2.2.2
hostname(config)# access-list global_acl permit tcp any host 10.2.2.2 eq 80
hostname(config)# access-group global_acl global
```

The following example shows how NAT and the global access control policy work together. The example permits one HTTP connection from host 10.1.1.1 to host 192.168.0.0, permits another HTTP connection from host 209.165.200.225 to host 172.16.0.0, and denies one HTTP connection from host 10.1.1.1 to host 172.16.0.0.

```
hostname(config)# object network 10.1.1.1 host 10.1.1.1
hostname(config)# object network 172.16.0.0 host 172.16.0.0
hostname(config)# object network 192.168.0.0 host 192.168.0.0
hostname(config)# nat (inside, any) source static 10.1.1.1 10.1.1.1 destination static
                  192.168.0.0 172.16.0.0
hostname(config)# access-list global_acl permit ip object 10.1.1.1 object 172.16.0.0
hostname(config)# access-list global_acl permit ip host 209.165.200.225 object 172.16.0.0
hostname(config)# access-list global_acl deny ip any 172.16.0.0
hostname(config)# access-group global_acl global
```

Related Commands

Command	Description
access-list extended	Creates an ACL or uses a downloadable ACL.
clear configure access-group	Removes access groups from all the interfaces.
show running-config access-group	Displays the current ACL bound to the interfaces.

access-list alert-interval

To specify the time interval between deny flow maximum messages, use the **access-list alert-interval** command in global configuration mode. To return to the default settings, use the **no** form of this command.

access-list alert-interval *secs*

no access-list alert-interval

Syntax Description

secs	Time interval between deny flow maximum message generation; valid values are from 1 to 3600 seconds. The default value is 300 seconds.

Defaults

The default is 300 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **access-list alert-interval** command sets the time interval for generating syslog message 106001, which alerts you that the ASA has reached a deny flow maximum. When the deny flow maximum is reached, another syslog message 106001 is generated if at least *secs* seconds have passed since the last syslog message 106001 was generated.

See the **access-list deny-flow-max** command for information about the deny flow maximum message generation.

Examples

The following example shows how to specify the time interval between deny flow maximum messages:

```
hostname(config)# access-list alert-interval 30
```

Related Commands

Command	Description
access-list deny-flow-max	Specifies the maximum number of concurrent deny flows that can be created.
access-list extended	Adds an ACL to the configuration and is used to configure policy for IP traffic through the ASA.
clear access-group	Clears an ACL counter.
clear configure access-list	Clears ACLs from the running configuration.
show access-list	Displays the ACL entries by number.

access-list deny-flow-max

To specify the maximum number of concurrent deny flows that can be created, use the **access-list deny-flow-max** command in global configuration mode. To return to the default settings, use the **no** form of this command.

access-list deny-flow-max

no access-list deny-flow-max

Syntax Description

This command has no arguments or keywords.

Defaults

The default is 4096 concurrent deny flows.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Syslog message 106101 is generated when the ASA has reached the maximum number, *n*, of ACL deny flows.

Examples

The following example shows how to specify the maximum number of concurrent deny flows that can be created:

```
hostname(config)# access-list deny-flow-max 256
```

Related Commands

Command	Description
access-list extended	Adds an ACL to the configuration and is used to configure policy for IP traffic through the ASA.
clear access-group	Clears an ACL counter.
clear configure access-list	Clears ACLs from the running configuration.

Command	Description
show access-list	Displays the ACL entries by number.
show running-config access-list	Displays the current running access list configuration.

access-list ethertype

To configure an ACL that controls traffic based on its EtherType, use the **access-list ethertype** command in global configuration mode. To remove the ACL, use the **no** form of this command.

access-list *id* **ethertype** {**deny** | **permit**} {**ipx** | **is-is** | **bpdu** | **mpls-unicast** | **mpls-multicast** | **any** | *hex_number*}

no access-list *id* **ethertype** {**deny** | **permit**} {**ipx** | **is-is** | **bpdu** | **mpls-unicast** | **mpls-multicast** | **any** | *hex_number*}

Syntax Description

any	Permits or denies all traffic.
bpdu	Permits or denies bridge protocol data units. By default, BPDUs are denied.
deny	Denies traffic.
hex_number	Permits or denies traffic with a particular EtherType, specified as a 16-bit hexadecimal number greater than or equal to 0x600.
id	Specifies the name or number of an ACL.
ipx	Permits or denies IPX.
is-is	Permits or denies IS-IS.
mpls-multicast	Permits or denies MPLS multicast.
mpls-unicast	Permits or denies MPLS unicast.
permit	Permits traffic.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	—	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.4(5), 9.1(2)	We added the **is-is** keyword.

Usage Guidelines

An EtherType ACL is made up of one or more Access Control Entries (ACEs) that specify an EtherType. An EtherType rule controls any EtherType identified by a 16-bit hexadecimal number, as well as selected traffic types.

Note For EtherType ACLs, the implicit deny at the end of the ACL does not affect IP traffic or ARPs; for example, if you allow EtherType 8037, the implicit deny at the end of the ACL does not now block any IP traffic that you previously allowed with an extended ACL (or implicitly allowed from a high security interface to a low security interface). However, if you explicitly deny all traffic with an EtherType ACE, then IP and ARP traffic is denied; only physical protocol traffic, such as auto-negotiation, is still allowed.

Supported EtherTypes and Other Traffic

An EtherType rule controls the following:

- EtherType identified by a 16-bit hexadecimal number, including common types IPX and MPLS unicast or multicast.
- Ethernet V2 frames.
- BPDUs, which are permitted by default. BPDUs are SNAP-encapsulated, and the ASA is designed to specifically handle BPDUs.
- Trunk port (Cisco proprietary) BPDUs. Trunk BPDUs have VLAN information inside the payload, so the ASA modifies the payload with the outgoing VLAN if you allow BPDUs.
- IS-IS

The following types of traffic are not supported:

- 802.3-formatted frames—These frames are not handled by the rule because they use a length field as opposed to a type field.

Access Rules for Returning Traffic

Because EtherTypes are connectionless, you need to apply the rule to both interfaces if you want traffic to pass in both directions.

Allowing MPLS

If you allow MPLS, ensure that Label Distribution Protocol and Tag Distribution Protocol TCP connections are established through the ASA by configuring both MPLS routers connected to the ASA to use the IP address on the ASA interface as the router-id for LDP or TDP sessions. (LDP and TDP allow MPLS routers to negotiate the labels (addresses) used to forward packets.)

On Cisco IOS routers, enter the appropriate command for your protocol, LDP or TDP. The interface is the interface connected to the ASA.

```
hostname(config)# mpls ldp router-id interface force
```

Or

```
hostname(config)# tag-switching tdp router-id interface force
```

Examples

The following example shows how to add an EtherType ACL:

```
hostname(config)# access-list ETHER ethertype permit ipx
hostname(config)# access-list ETHER ethertype permit bpdu
hostname(config)# access-list ETHER ethertype permit mpls-unicast
hostname(config)# access-group ETHER in interface inside
```

Related Commands

Command	Description
access-group	Binds the ACL to an interface.
clear access-group	Clears ACL counters.
clear configure access-list	Clears an ACL from the running configuration.
show access-list	Displays the ACL entries by number.
show running-config access-list	Displays the current running access-list configuration.

access-list extended

To add an Access Control Entry (ACE), use the **access-list extended** command in global configuration mode. To remove an ACE, use the **no** form of this command.

For any type of traffic, no ports:

access-list *access_list_name* [**line** *line_number*] **extended** {**deny** | **permit**} *protocol_argument* [*user_argument*] [*security_group_argument*] *source_address_argument* [*security_group_argument*] *dest_address_argument* [**log** [[*level*] [**interval** *secs*] | **disable** | **default**]] [**inactive** | **time-range** *time_range_name*]

no access-list *access_list_name* [**line** *line_number*] **extended** {**deny** | **permit**} *protocol_argument* [*user_argument*] [*security_group_argument*] *source_address_argument* [*security_group_argument*] *dest_address_argument* [**log** [[*level*] [**interval** *secs*] | **disable** | **default**]] [**inactive** | **time-range** *time_range_name*]

For TCP or UDP traffic, with ports:

access-list *access_list_name* [**line** *line_number*] **extended** {**deny** | **permit**} {**tcp** | **udp**} [*user_argument*] [*security_group_argument*] *source_address_argument* [*port_argument*] [*security_group_argument*] *dest_address_argument* [*port_argument*] [**log** [[*level*] [**interval** *secs*] | **disable** | **default**]] [**inactive** | **time-range** *time_range_name*]

no access-list *access_list_name* [**line** *line_number*] **extended** {**deny** | **permit**} {**tcp** | **udp**} [*user_argument*] [*security_group_argument*] *source_address_argument* [*port_argument*] [*security_group_argument*] *dest_address_argument* [*port_argument*] [**log** [[*level*] [**interval** *secs*] | **disable** | **default**]] [**inactive** | **time-range** *time_range_name*]

For ICMP traffic, with ICMP type:

access-list *access_list_name* [**line** *line_number*] **extended** {**deny** | **permit**} **icmp** [*user_argument*] [*security_group_argument*] *source_address_argument* [*security_group_argument*] *dest_address_argument* [*icmp_argument*] [**log** [[*level*] [**interval** *secs*] | **disable** | **default**]] [**inactive** | **time-range** *time_range_name*]

no access-list *access_list_name* [**line** *line_number*] **extended** {**deny** | **permit**} **icmp** [*user_argument*] [*security_group_argument*] *source_address_argument* [*security_group_argument*] *dest_address_argument* [*icmp_argument*] [**log** [[*level*] [**interval** *secs*] | **disable** | **default**]] [**inactive** | **time-range** *time_range_name*]

Syntax Description

access_list_name	Specifies the ACL ID, as a string or integer up to 241 characters in length. The ID is case-sensitive. **Tip** Use all capital letters to see the ACL ID better in your configuration.
default	(Optional) Sets logging to the default method, which is to generate system log message 106023 for each denied packet.

deny	Denies a packet if the conditions are matched. In the case of network access (the **access-group** command), this keyword prevents the packet from passing through the ASA. In the case of applying application inspection to a class map (the **class-map** and **inspect** commands), this keyword exempts the traffic from inspection. Some features do not allow deny ACEs to be used. See the command documentation for each feature that uses an ACL for more information.
dest_address_argument	Specifies the IP address or FQDN to which the packet is being sent. Available arguments include: • **host** *ip_address*—Specifies an IPv4 host address. • *dest_ip_address mask*—Specifies an IPv4 network address and subnet mask. When you specify a network mask, the method is different from the Cisco IOS software **access-list** command. The ASA uses a network mask (for example, 255.255.255.0 for a Class C mask). The Cisco IOS mask uses wildcard bits (for example, 0.0.0.255). • *ipv6-address*/*prefix-length*—Specifies an IPv6 host or network address and prefix. • **any**, **any4**, and **any6**—**any** specifies both IPv4 and IPv6 traffic; **any4** specifies only IPv4 traffic; and **any6** specifies any6 traffic. • **interface**—Specifies the interface address. You must specify the interface keyword instead of specifying the actual IP address in the ACL when the traffic source is a device interface. For example, you can use this option to block certain remote IP addresses from initiating a VPN session to the ASA by blocking ISAKMP. Any traffic originated from or destined to the ASA, itself, requires that you use the **access-group** command with the **control-plane** optional keyword. • **object** *nw_obj_id*—Specifies a network object created using the **object network** command. • **object-group** *nw_grp_id*—Specifies a network object group created using the **object-group network** command.
disable	(Optional) Disables logging for this ACE.
icmp_argument	(Optional) Specifies the ICMP type and code. • *icmp_type* [*icmp_code*]—Specifies the ICMP type by name or number, and the optional ICMP code for that type. If you do not specify the code, then all codes are used. • **object-group** *icmp_grp_id*—Specifies an ICMP object group created using the **object-group icmp** command.
inactive	(Optional) Disables an ACE. To reenable it, enter the entire ACE without the **inactive** keyword. This feature lets you keep a record of an inactive ACE in your configuration to make reenabling easier.
interval *secs*	(Optional) Specifies the log interval at which to generate system log message 106100. Valid values are from 1 to 600 seconds. The default is 300.
level	(Optional) Sets the system log message 106100 severity level from 0 to 7. The default level is 6 (informational).

line *line-num*	(Optional) Specifies the line number at which to insert the ACE. If you do not specify a line number, the ACE is added to the end of the ACL. The line number is not saved in the configuration; it only specifies where to insert the ACE.
log	(Optional) Sets logging options when a **ACE** matches a packet for network access (an ACL applied with the **access-group** command). If you enter the **log** keyword without any arguments, you enable system log message 106100 at the default level (6) and for the default interval (300 seconds). If you do not enter the **log** keyword, then the default system log message 106023 is generated.
permit	Permits a packet if the conditions are matched. In the case of network access (the **access-group** command), this keyword lets the packet pass through the ASA. In the case of applying application inspection to a class map (the **class-map** and **inspect** commands), this keyword applies inspection to the packet.
port_argument	(Optional) If you set the protocol to TCP or UDP, specifies the source and/or destination port. Available arguments include: • *operator port*—The *operator* can be one of the following: – **lt**—less than – **gt**—greater than – **eq**—equal to – **neq**—not equal to – **range**—an inclusive range of values. When you use this operator, specify two port numbers, for example: `range 100 200` The *port* can be the integer or name of a TCP or UDP port. DNS, Discard, Echo, Ident, NTP, RPC, SUNRPC, and Talk each require one definition for TCP and one for UDP. TACACS+ requires one definition for port 49 on TCP. • **object-group** *service_grp_id*—Specifies a service object group created using the **object-group service** command.
protocol_argument	Specifies the IP protocol. Available arguments include: • *name* or *number*—Specifies the protocol name or number. For example, UDP is 17, TCP is 6, and EGP is 47. Specify **ip** to apply to all protocols. • **object-group** *protocol_grp_id*—Specifies a protocol object group created using the **object-group protocol** command. • **object** *service_obj_id*—Specifies a service object created using the **object service** command. A TCP, UDP, or ICMP service object can include a protocol and a source and/or destination port or ICMP type and code, which are used when matching traffic to the ACE; you do not have to configure the port/type separately in the ACE. • **object-group** *service_grp_id*—Specifies a service object group created using the **object-group service** command.

security_group_argument	For use with the TrustSec feature, specifies the security group for which to match traffic in addition to the source or destination address. Available arguments include: • **object-group-security** *security_obj_grp_id*—Specifies a security object group created using the **object-group security** command. • **security-group** {**name** *security_grp_id* | **tag** *security_grp_tag*}—Specifies a security group name or tag.
source_address_argument	Specifies the IP address or FQDN from which the packet is being sent. Available arguments include: • **host** *ip_address*—Specifies an IPv4 host address. • *dest_ip_address mask*—Specifies an IPv4 network address and subnet mask. When you specify a network mask, the method is different from the Cisco IOS software **access-list** command. The ASA uses a network mask (for example, 255.255.255.0 for a Class C mask). The Cisco IOS mask uses wildcard bits (for example, 0.0.0.255). • *ipv6-address*/*prefix-length*—Specifies an IPv6 host or network address and prefix. • **any**, **any4**, and **any6**—**any** specifies both IPv4 and IPv6 traffic; **any4** specifies only IPv4 traffic; and **any6** specifies any6 traffic. • **interface**—Specifies the interface address. You must specify the interface keyword instead of specifying the actual IP address in the ACL when the traffic source is a device interface. For example, you can use this option to block certain remote IP addresses from initiating a VPN session to the ASA by blocking ISAKMP. Any traffic originated from or destined to the ASA, itself, requires that you use the **access-group** command with the **control-plane** optional keyword. • **object** *nw_obj_id*—Specifies a network object created using the **object network** command. • **object-group** *nw_grp_id*—Specifies a network object group created using the **object-group network** command.
tcp	Sets the protocol to TCP.
time-range *time_range_name*	(Optional) Schedules each ACE to be activated at specific times of the day and week by applying a time range to the ACE. See the **time-range** command for information about defining a time range.

udp	Sets the protocol to UDP.
user_argument	For use with the identity firewall feature, specifies the user or group for which to match traffic in addition to the source address. Available arguments include: • **object-group-user** *user_obj_grp_id*—Specifies a user object group created using the **object-group user** command. • **user** {[*domain_nickname*\]*name* | **any** | **none**}—Specifies a user name. Specify **any** to match all users with user credentials, or **none** to match users without user credentials. These options are especially useful for combining **access-group** and **aaa authentication match** policies. • **user-group** [*domain_nickname*\\]*user_group_name*—Specifies a user group name.

Defaults

- ACE logging generates system log message 106023 for denied packets. A **deny ACE** must be present to log denied packets.
- When the **log** keyword is specified, the default level for system log message 106100 is 6 (informational), and the default interval is 300 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.3(1)	When using NAT or PAT, mapped addresses and ports are no longer required in an ACL for several features. You should now always use the real, untranslated addresses and ports for these features. Using the real address and port means that if the NAT configuration changes, you do not need to change the ACLs. See the "Features That Use Real IP Addresses" section on page 1-74 for more information.
8.4(2)	You can now use identity firewall users and groups for the source and destination, in addition to the source or destination IP address. Support for **user**, **user-group**, and **object-group-user** were added for the source and destination.
9.0(1)	You can now use TrustSec security groups for the source and destination, in addition to the source or destination IP address. Support for **security-group** and **object-group-security** were added for the source or destination.

Release	Modification
9.0(1)	Support for IPv6 was added. The **any** keyword was changed to represent IPv4 and IPv6 traffic. The **any4** and **any6** keywords were added to represent IPv4-only and IPv6-only traffic, respectively. You can specify a mix of IPv4 and IPv6 addresses for the source and destination. If you use NAT to translate between IPv4 and IPv6, the actual packet will not include a mix of IPv4 and IPv6 addresses; however, for many features, the ACL always uses the real IP addresses and does not consider the NAT mapped addresses. The IPv6-specific ACLs are deprecated. Existing IPv6 ACLs are migrated to extended ACLs. See the release notes for more information about migration. For information about ACL migration, see the 9.0 release notes.
9.0(1)	Support for the ICMP code was added. When you specify **icmp** as the protocol, you can enter *icmp_type* [*icmp_code*].

Usage Guidelines

An ACL is made up of one or more ACEs with the same ACL ID. ACLs are used to control network access or to specify traffic for many features to act upon. Each ACE that you enter for a given ACL name is appended to the end of the ACL, unless you specify the line number in the ACE. To remove the entire ACL, use the **clear configure access-list** command.

Order of ACEs

The order of ACEs is important. When the ASA decides whether to forward or drop a packet, the ASA tests the packet with each ACE in the order in which the entries are listed. After a match is found, no more ACEs are checked. For example, if you create an ACE at the beginning of an ACL that explicitly permits all traffic, no further statements are ever checked.

Features That Use Real IP Addresses

Note For ACL migration information, see the *Cisco ASA 5500 Migration to Version 8.3 and Later.*

The following commands and features now use real IP addresses in the ACLs:

- **access-group** command
- Modular Policy Framework **match access-list** command
- Botnet Traffic Filter **dynamic-filter enable classify-list** command
- AAA **aaa ... match** commands
- WCCP

Features That Use Mapped IP Addresses

The following features use ACLs, but these ACLs will continue to use the mapped values as seen on an interface:

- IPsec ACLs
- **capture** command ACLs
- Per-user ACLs
- Routing protocol ACLs
- All other feature ACLs

Features That Do Not Support IDFW, FQDN, and TrustSec ACLs

The following features use ACLs, but cannot accept an ACL with IDFW, FQDN, or TrustSec values:

- **route-map** command
- VPN **crypto map** command
- VPN **group-policy** command, except for **vpn-filter**
- WCCP
- DAP

Examples

The following ACL allows all hosts (on the interface to which you apply the ACL) to go through the ASA:

```
hostname(config)# access-list ACL_IN extended permit ip any any
```

The following sample ACL prevents hosts on 192.168.1.0/24 from accessing the 209.165.201.0/27 network. All other addresses are permitted.

```
hostname(config)# access-list ACL_IN extended deny tcp 192.168.1.0 255.255.255.0
209.165.201.0 255.255.255.224
hostname(config)# access-list ACL_IN extended permit ip any any
```

If you want to restrict access to only some hosts, then enter a limited **permit ACE**. By default, all other traffic is denied unless explicitly permitted.

```
hostname(config)# access-list ACL_IN extended permit ip 192.168.1.0 255.255.255.0
209.165.201.0 255.255.255.224
```

The following ACL restricts all hosts (on the interface to which you apply the ACL) from accessing a website at address 209.165.201.29. All other traffic is allowed.

```
hostname(config)# access-list ACL_IN extended deny tcp any host 209.165.201.29 eq www
hostname(config)# access-list ACL_IN extended permit ip any any
```

The following ACL that uses object groups restricts several hosts on the inside network from accessing several web servers. All other traffic is allowed.

```
hostname(config-network)# access-list ACL_IN extended deny tcp object-group denied
object-group web eq www
hostname(config)# access-list ACL_IN extended permit ip any any
hostname(config)# access-group ACL_IN in interface inside
```

To temporarily disable an ACL that permits traffic from one group of network objects (A) to another group of network objects (B):

```
hostname(config)# access-list 104 permit ip host object-group A object-group B inactive
```

To implement a time-based ACL, use the **time-range** command to define specific times of the day and week. Then use the **access-list extended** command to bind the time range to an ACL. The following example binds an ACL named “Sales” to a time range named “New_York_Minute”:

```
hostname(config)# access-list Sales line 1 extended deny tcp host 209.165.200.225 host
209.165.201.1 time-range New_York_Minute
```

See the **time-range** command for more information about how to define a time range.

The following ACL allows any ICMP traffic:

```
hostname(config)# access-list abc extended permit icmp any any
```

The following ACL allows any ICMP traffic for the object group “obj_icmp_1”:

```
hostname(config)# access-list abc extended permit icmp any any object-group obj_icmp_1
```

The following ACL permits ICMP traffic with ICMP type 3 and ICMP code 4 from source host 10.0.0.0 to destination host 10.1.1.1. All other type of ICMP traffic is not be permitted.

```
hostname(config)# access-list abc extended permit icmp host 10.0.0.0 host 10.1.1.1 3 4
```

The following ACL permits ICMP traffic with ICMP type 3 and any ICMP code from source host 10.0.0.0 to destination host 10.1.1.1. All other type of ICMP traffic is not be permitted.

```
hostname(config)# access-list abc extended permit icmp host 10.0.0.0 host 10.1.1.1 3
```

Related Commands

Command	Description
access-group	Binds the ACL to an interface.
clear access-group	Clears an ACL counter.
clear configure access-list	Clears an ACL from the running configuration.
show access-list	Displays ACEs by number.
show running-config access-list	Displays the current running access list configuration.

access-list remark

To specify the text of a remark to add before or after an **access-list extended** command, use the **access-list remark** command in global configuration mode. To delete the remark, use the **no** form of this command.

access-list *id* [**line** *line-num*] **remark** *text*

no access-list *id* [**line** *line-num*] **remark** [*text*]

Syntax Description

id	Name of an ACL.
line *line-num*	(Optional) The line number at which to insert a remark or an access control element (ACE).
remark text	Text of the remark to add before or after an **access-list extended** command.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The remark text must contain at least one non-space character; an empty remark is not allowed. The remark text can be up to 100 characters long, including spaces and punctuation.

You cannot use the **access-group** command on an ACL that includes a remark only.

Examples

The following example shows how to specify the text of a remark to add before or after an **access-list** command:

```
hostname(config)# access-list 77 remark checklist
```

Related Commands

Command	Description
access-list extended	Adds an ACL to the configuration and is used to configure policy for IP traffic through the ASA.
clear access-group	Clears an ACL counter.
clear configure access-list	Clears ACLs from the running configuration.
show access-list	Displays the ACL entries by number.
show running-config access-list	Displays the current running access list configuration.

access-list rename

To rename an ACL, use the **access-list rename** command in global configuration mode.

access-list *id* **rename** *new_acl_id*

Syntax Description

id	Name of an existing ACL.
rename *new_acl_id*	Specifies the new ACL ID, as a string or integer up to 241 characters long. The ID is case-sensitive.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

If the ACL is renamed to the same name, the ASA will silently ignore the command.

Examples

The following example shows how to rename an ACL from TEST to OUTSIDE:

```
hostname(config)# access-list TEST rename OUTSIDE
```

Related Commands

Command	Description
access-list extended	Adds an ACL to the configuration and is used to configure policy for IP traffic through the ASA.
clear access-group	Clears an ACL counter.
clear configure access-list	Clears ACLs from the running configuration.
show access-list	Displays the ACL entries by number.
show running-config access-list	Displays the current running access-list configuration.

access-list standard

To add an ACL to identify the destination IP addresses of OSPF routes, which can be used in a route map for OSPF redistribution, use the **access-list standard** command in global configuration mode. To remove the ACL, use the **no** form of this command.

access-list *id* **standard** [**line** *line-num*] {**deny** | **permit**} {**any4** | **host** *ip_address* | *ip_address subnet_mask*}

no access-list *id* **standard** [**line** *line-num*] {**deny** | **permit**} {**any4** | **host** *ip_address* | *ip_address subnet_mask*}

Syntax Description

any4	Specifies access to anyone.
deny	Denies access if the conditions are matched.
host *ip_address*	(Optional) Specifies access to a host IP address.
id	Name or number of an ACL.
ip_address ip_mask	Specifies access to a specific IP address (optional) and subnet mask.
line *line-num*	(Optional) The line number at which to insert an ACE.
permit	Permits access if the conditions are matched.

Defaults

The defaults are as follows:

- The ASA denies all packets on the originating interface unless you specifically permit access.
- ACL logging generates system log message 106023 for denied packets—deny packets must be present to log denied packets.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

When used with the **access-group** command, the **deny** keyword does not allow a packet to traverse the ASA. By default, the ASA denies all packets on the originating interface unless you specifically permit access.

Use the following guidelines for specifying a source, local, or destination address:

- Use a 32-bit quantity in four-part, dotted-decimal format.

- Use the keyword **any** as an abbreviation for an address and mask of 0.0.0.0 0.0.0.0.
- Use the **host** *ip_address* option as an abbreviation for a mask of 255.255.255.255.

Examples

The following example shows how to deny IP traffic through the ASA:

```
hostname(config)# access-list 77 standard deny
```

The following example shows how to permit IP traffic through the ASA if conditions are matched:

```
hostname(config)# access-list 77 standard permit
```

The following example shows how to specify a destination address:

```
hostname(config)# access-list 77 standard permit host 10.1.10.123
```

Related Commands

Command	Description
access-group	Defines object groups that you can use to optimize your configuration.
clear access-group	Clears an ACL counter.
clear configure access-list	Clears ACLs from the running configuration.
show access-list	Displays the ACL entries by number.
show running-config access-list	Displays the current running access list configuration.

access-list webtype

To add an ACL to the configuration that supports filtering for clientless SSL VPN, use the **access-list webtype** command in global configuration mode. To remove the ACL, use the **no** form of this command.

access-list *id* **webtype** {**deny** | **permit**} **url** {*url_string* | **any**} [**log** {**disable** | **default** | **level**} [**interval** *secs*]] [**time_range** *name*]] [inactive]

no access-list *id* **webtype** {**deny** | **permit**} **url** {*url_string* | **any**} [**log** {**disable** | **default** | **level**} [**interval** *secs*]] [**time_range** *name*]] [inactive]

access-list *id* **webtype** {**deny** | **permit**} **tcp** [**host** *host_address* | *dest_address subnet_mask* | **any**] [*oper port* [*port*]] [**log** {**disable** | **default** | *level*} [**interval** *secs*] [**time_range** *name*]] [inactive]

no **access-list** *id* **webtype** {**deny** | **permit**} **tcp** [**host** *host_address* | *dest_address subnet_mask* | **any**] [*oper port* [*port*]] [**log** {**disable** | **default** | *level*} [**interval** *secs*] [**time_range** *name*]] [inactive]

Syntax Description

any	Specifies all IP addresses.
any	(Optional) Specifies all URLs.
deny	Denies access if the conditions are matched.
dest_address	Specifies a destination IP address.
host_address	Specifies a host IP address.
id	Specifies a name or number of an ACL.
inactive	Disables an ACE.
interval *secs*	(Optional) Specifies the time interval at which to generate system log message 106100; valid values are from 1 to 600 seconds.
log {**disable** | **default** | *level*}	(Optional) Specifies that system log message 106100 is generated for the ACE. See the **log** command for information.
oper	Compares *ip_address* ports. Possible operands include lt (less than), gt (greater than), eq (equal), neq (not equal), and range (inclusive range).
permit	Permits access if the conditions are matched.
port	Specifies the decimal number or name of a TCP or UDP port.
subnet mask	Specifies the subnet mask of the destination IP address.
time_range *name*	(Optional) Specifies a keyword for attaching the time-range option to this ACL element.
url	Specifies that a URL be used for filtering.
url_string	(Optional) Specifies the URL to be filtered.

Defaults

The defaults are as follows:

- The ASA denies all packets on the originating interface unless you specifically permit access.
- ACL logging generates syslog message 106023 for denied packets—deny packets must be present to log denied packets.

- When the **log** optional keyword is specified, the default level for syslog message 106100 is 6 (informational).

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **access-list webtype** command is used to configure clientless SSL VPN filtering. The URL specified may be full or partial (no file specified), may include wildcards for the server, or may specify a port.

Valid protocol identifiers are: http, https, cifs, imap4, pop3, and smtp. The URL may also contain the keyword **any** to refer to any URL. An asterisk may be used to refer to a subcomponent of a DNS name.

If you disable an ACE with the inactive keyword, you can enable it again by entering the entire ACE without the **inactive** keyword. This feature enables you to keep a record of an inactive ACE in your configuration to make reenabling easier.

Examples

The following example shows how to deny access to a specific company URL:

```
hostname(config)# access-list acl_company webtype deny url http://*.example.com
```

The following example shows how to deny access to a specific file:

```
hostname(config)# access-list acl_file webtype deny url
https://www.example.com/dir/file.html
```

The following example shows how to deny HTTP access to any URL through port 8080:

```
hostname(config)# access-list acl_company webtype deny url http://my-server:8080/*
```

Related Commands

Command	Description
access-group	Defines object groups that you can use to optimize your configuration.
access-list ethertype	Configures an ACL that controls traffic based on its EtherType.
access-list extended	Adds an ACL to the configuration and configures policy for IP traffic through the ASA.
clear access-group	Clears an ACL counter.
show running-config access-list	Displays the access list configuration running on the ASA.

accounting-mode

To indicate whether accounting messages are sent to a single server (single mode) or sent to all servers in the group (simultaneous mode), use the **accounting-mode** command in aaa-server configuration mode. To remove the accounting mode specification, use the **no** form of this command.

accounting-mode {**simultaneous** | **single**}

Syntax Description

simultaneous	Sends accounting messages to all servers in the group.
single	Sends accounting messages to a single server.

Defaults

The default value is single mode.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Aaa-server configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Use the **single** keyword to send accounting messages to a single server. Use the **simultaneous** keyword to send accounting messages to all servers in the server group.

This command is meaningful only when the server group is used for accounting (RADIUS or TACACS+).

Examples

The following example shows the use of the **accounting-mode** command to send accounting messages to all servers in the group:

```
hostname(config)# aaa-server svrgrp1 protocol tacacs+
hostname(config-aaa-server-group)# accounting-mode simultaneous
hostname(config-aaa-server-group)# exit
hostname(config)#
```

Related Commands

Command	Description
aaa accounting	Enables or disables accounting services.

aaa-server protocol	Enters AAA server group configuration mode, so you can configure AAA server parameters that are group-specific and common to all hosts in the group.
clear configure aaa-server	Removes all AAA server configuration.
show running-config aaa-server	Displays AAA server statistics for all AAA servers, for a particular server group, for a particular server within a particular group, or for a particular protocol.

accounting-port

To specify the port number used for RADIUS accounting for this host, use the **accounting-port** command in aaa-server host configuration mode. To remove the authentication port specification, use the **no** form of this command.

accounting-port *port*

no accounting-port

Syntax Description

port	A port number for RADIUS accounting; the range of valid values is 1- 65535.

Defaults

By default, the device listens for RADIUS on port 1646 for accounting (in compliance with RFC 2058). If the port is not specified, the RADIUS accounting default port number (1646) is used.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Aaa-server host configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command specifies the destination TCP/UDP port number of the remote RADIUS server hosts to which you want to send accounting records. If your RADIUS accounting server uses a port other than 1646, you must configure the ASA for the appropriate port before starting the RADIUS service with the **aaa-server** command.

This command is valid only for server groups that are configured for RADIUS.

Examples

The following example configures a RADIUS AAA server named “srvgrp1” on host “1.2.3.4”, sets a timeout of 9 seconds, sets a retry-interval of 7 seconds, and configures accounting port 2222.

```
hostname(config)# aaa-server svrgrp1 protocol radius
hostname(config-aaa-server-group)# aaa-server svrgrp1 host 1.2.3.4
hostname(config-aaa-server-host)# timeout 9
hostname(config-aaa-server-host)# retry-interval 7
hostname(config-aaa-server-host)# accountinq-port 2222
hostname(config-aaa-server-host)# exit
hostname(config)#
```

Related Commands

Command	Description
aaa accounting	Keeps a record of which network services a user has accessed.
aaa-server host	Enters aaa server host configuration mode, so you can configure AAA server parameters that are host-specific.
clear configure aaa-server	Removes all AAA command statements from the configuration.
show running-config aaa-server	Displays AAA server statistics for all AAA servers, for a particular server group, for a particular server within a particular group, or for a particular protocol.

accounting-server-group

To specify the AAA server group for sending accounting records, use the **accounting-server-group** command in various modes. To remove accounting servers from the configuration, use the **no** form of this command.

accounting-server-group *group_tag*

no accounting-server-group [*group_tag*]

Syntax Description

group_tag	Identifies the previously configured accounting server or group of servers. Use the **aaa-server** command to configure accounting servers.

Defaults

No accounting servers are configured by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Imap4s configuration	•	—	•	—	—
Pop3s configuration	•	—	•	—	—
Smtps configuration	•	—	•	—	—
Tunnel-group general-attributes configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	This command is available in tunnel-group general-attributes configuration mode, instead of webvpn configuration mode.

Usage Guidelines

The ASA uses accounting to keep track of the network resources that users access. If you enter this command in webvpn configuration mode, it is transformed to the same command in tunnel-group general-attributes configuration mode.

Examples

The following example entered in tunnel-group-general attributes configuration mode, configures an accounting server group named “aaa-server123” for an IPSec LAN-to-LAN tunnel group “xyz”:

```
hostname(config)# tunnel-group xyz type IPSec_L2L
hostname(config)# tunnel-group xyz general-attributes
hostname(config-tunnel-general)# accounting-server-group aaa-server123
hostname(config-tunnel-general)#
```

The following example shows how to configure POP3S e-mail proxy to use the set of accounting servers named POP3SSVRS:

```
hostname(config)# pop3s
hostname(config-pop3s)# accounting-server-group POP3SSVRS
```

Related Commands

Command	Description
aaa-server	Configures authentication, authorization, and accounting servers.

acl-netmask-convert through application-access hide-details Commands

acl-netmask-convert

To specify how the ASA treats netmasks received in a downloadable ACL from a RADIUS server that is accessed by using the **aaa-server host** command, use the **acl-netmask-convert** command in aaa-server host configuration mode . To remove the specified behavior for the ASA, use the **no** form of this command.

acl-netmask-convert {**auto-detect** | **standard** | **wildcard**}

no acl-netmask-convert

Syntax Description

auto-detect	Specifies that the ASA should attempt to determine the type of netmask expression used. If the ASA detects a wildcard netmask expression, it converts it to a standard netmask expression. See "Usage Guidelines" for more information about this keyword.
standard	Specifies that the ASA assumes downloadable ACLs received from the RADIUS server contain only standard netmask expressions. No translation from wildcard netmask expressions is performed.
wildcard	Specifies that the ASA assumes downloadable ACLs received from the RADIUS server contain only wildcard netmask expressions and converts them all to standard netmask expressions when the ACLs are downloaded.

Defaults

By default, no conversion from wildcard netmask expressions is performed.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Aaa-server-host configuration	•	•	•	•	—

Command History

Release	Modification
7.0(4)	This command was introduced.

Usage Guidelines

Use the **acl-netmask-convert** command with the wildcard or auto-detect keywords when a RADIUS server provides downloadable ACLs that contain netmasks in wildcard format. The ASA expects downloadable ACLs to contain standard netmask expressions whereas Cisco VPN 3000 series concentrators expect downloadable ACLs to contain wildcard netmask expressions, which are the reverse of a standard netmas expression. A wildcard mask has ones in bit positions to ignore, zeros in bit positions to match.The **acl-netmask-convert** command helps minimize the effects of these differences upon how you configure downloadable ACLs on your RADIUS servers.

The **auto-detect** keyword is helpful when you are uncertain how the RADIUS server is configured; however, wildcard netmask expressions with "holes" in them cannot be unambiguously detected and converted. For example, the wildcard netmask 0.0.255.0 permits anything in the third octet and can be used validly on Cisco VPN 3000 series concentrators, but the ASA may not detect this expression as a wildcard netmask.

Examples

The following example configures a RADIUS AAA server named "srvgrp1" on host "192.168.3.4", enables conversion of downloadable ACL netmasks, sets a timeout of 9 seconds, sets a retry-interval of 7 seconds, and configures authentication port 1650:

```
hostname(config)# aaa-server svrgrp1 protocol radius
hostname(config-aaa-server-group)# aaa-server svrgrp1 host 192.168.3.4
hostname(config-aaa-server-host)# acl-netmask-convert wildcard
hostname(config-aaa-server-host)# timeout 9
hostname(config-aaa-server-host)# retry-interval 7
hostname(config-aaa-server-host)# authentication-port 1650
hostname(config-aaa-server-host)# exit
hostname(config)#
```

Related Commands

Command	Description
aaa authentication	Enables or disables LOCAL, TACACS+, or RADIUS user authentication, on a server designated by the **aaa-server** command, or ASDM user authentication.
aaa-server host	Enters aaa-server host configuration mode, so you can configure AAA server parameters that are host-specific.
clear configure aaa-server	Removes all AAA command statements from the configuration.
show running-config aaa-server	Displays AAA server statistics for all AAA servers, for a particular server group, for a particular server within a particular group, or for a particular protocol.

action

To either apply access policies to a session or teminate the session, use the **action** command in dynamic-access-policy-record configuration mode. To reset the session to apply an access policy to a session, use the **no** form of the command.

action {continue | terminate}

no action {continue | terminate}

Syntax Description

continue	Applies the access policies to the session.
terminate	Terminates the connection.

Defaults

The default value is continue.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Dynamic-access-policy-record configuration	•	•	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Use the **continue** keyword to apply the access policies to the session in all of the selected DAP records. Use the **terminate** keyword to terminate the connection in any of the selected DAP records.

Examples

The following example shows how to terminate a session for the DAP policy Finance:

```
hostname (config)# config-dynamic-access-policy-record Finance
hostname(config-dynamic-access-policy-record)# action terminate
hostname(config-dynamic-access-policy-record)#
```

Related Commands

Command	Description
dynamic-access-policy-record	Creates a DAP record.
show running-config dynamic-access-policy-record [*name*]	Displays the running configuration for all DAP records, or for the named DAP record.

action-uri

To specify a web server URI to receive a username and password for single sign-on (SSO) authentication, use the **action-uri** command in aaa-server-host configuration mode. To reset the URI parameter value, use the **no** form of the command.

action-uri *string*

no action-uri

Note To configure SSO with the HTTP protocol correctly, you must have a thorough working knowledge of authentication and HTTP protocol exchanges.

Syntax Description

string	The URI for an authentication program. You can enter it on multiple lines. The maximum number of characters for each line is 255. The maximum number of characters for the complete URI is 2048 characters.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Aaa-server-host configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

This is an SSO with HTTP Forms command. A URI or Uniform Resource Identifier is a compact string of characters that identifies a point of content on the Internet, whether it be a page of text, a video or sound clip, a still or animated image, or a software program. The most common form of URI is the web page address, which is a particular form or subset of URI called a URL.

The WebVPN server of the ASA can use a POST request to submit an SSO authentication request to an authenticating web server. To accomplish this, configure the ASA to pass a username and a password to an action URI on an authenticating web server using an HTTP POST request. The **action-uri** command specifies the location and name of the authentication program on the web server to which the ASA sends the POST request.

You can discover the action URI on the authenticating web server by connecting to the web server login page directly with a browser. The URL of the login web page displayed in your browser is the action URI for the authenticating web server.

For ease of entry, you can enter URIs on multiple, sequential lines. The ASA then concatenates the lines into the URI as you enter them. While the maximum characters per action-uri line is 255 characters, you can enter fewer characters on each line.

Note Any question mark in the string must be preceded by a CTRL-v escape sequence.

Examples

The following example specifies the URI on www.example.com:

http://www.example.com/auth/index.html/appdir/authc/forms/MCOlogin.fcc?TYPE=33554433&REALMOID=06-000a1311-a828-1185-ab41-8333b16a0008&GUID=&SMAUTHREASON=0&METHOD=GET&SMAGENTNAME=SM5FZmjnk3DRNwNjk2KcqVCFbIrNT9%2bJ0H0KPshFtg6rB1UV2PxkHqLw%3d%3d&TARGET=https%3A%2F%2Fauth.example.com

```
hostname(config)# aaa-server testgrp1 host www.example.com
hostname(config-aaa-server-host)# action-uri http://www.example.com/auth/index.htm
hostname(config-aaa-server-host)# action-uri l/appdir/authc/forms/MCOlogin.fcc?TYP
hostname(config-aaa-server-host)# action-uri 554433&REALMOID=06-000a1311-a828-1185
hostname(config-aaa-server-host)# action-uri -ab41-8333b16a0008&GUID=&SMAUTHREASON
hostname(config-aaa-server-host)# action-uri =0&METHOD=GET&SMAGENTNAME=$SM$5FZmjnk
hostname(config-aaa-server-host)# action-uri 3DRNwNjk2KcqVCFbIrNT9%2bJ0H0KPshFtg6r
hostname(config-aaa-server-host)# action-uri B1UV2PxkHqLw%3d%3d&TARGET=https%3A%2F
hostname(config-aaa-server-host)# action-uri %2Fauth.example.com
hostname(config-aaa-server-host)#
```

Note You must include the hostname and protocol in the action URI. In the preceding example, these are included in http://www.example.com at the start of the URI.

Related Commands

Command	Description
auth-cookie-name	Specifies a name for the authentication cookie.
hidden-parameter	Creates hidden parameters for exchange with the SSO server.
password-parameter	Specifies the name of the HTTP POST request parameter in which a user password must be submitted for SSO authentication.
start-url	Specifies the URL at which to retrieve a pre-login cookie.
user-parameter	Specifies the name of the HTTP POST request parameter in which a username must be submitted for SSO authentication.

activation-key

To enter a license activation key on the ASA, use the **activation-key** command in privileged EXEC mode.

activation-key [**noconfirm**] *activation_key* [**activate** | **deactivate**]

Syntax Description

activate	Activates a time-based activation key. **activate** is the default value. The last time-based key that you activate for a given feature is the active one.
activation_key	Applies an activation key to the ASA. The *activation_key* is a five-element hexadecimal string with one space between each element. The leading 0x specifier is optional; all values are assumed to be hexadecimal. You can install one permanent key, and multiple time-based keys. If you enter a new permanent key, it overwrites the already installed one.
deactivate	Deactivates a time-based activation key. The activation key is still installed on the ASA when you deactivate it, and you can activate it later using the **activate** keyword. If you enter a key for the first time, and specify **deactivate**, then the key is installed on the ASA in an inactive state.
noconfirm	(Optional) Enters an activation key without prompting you for confirmation.

Defaults

By default, your ASA ships with a license already installed. This license might be the Base License, to which you want to add more licenses, or it might already have all of your licenses installed, depending on what you ordered and what your vendor installed for you. See the **show activation-key** command to determine which licenses you have installed.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(5)	Increased the following limits: • ASA5510 Base license connections from 32000 to 5000; VLANs from 0 to 10. • ASA5510 Security Plus license connections from 64000 to 130000; VLANs from 10 to 25. • ASA5520 connections from 130000 to 280000; VLANs from 25 to 100. • ASA5540 connections from 280000 to 400000; VLANs from 100 to 200.
7.1(1)	SSL VPN licenses were introduced.
7.2(1)	A 5000-user SSL VPN license was introduced for the ASA 5550 and above.
7.2(2)	• The maximum number of VLANs for the Security Plus license on the ASA 5505 ASA was increased from 5 (3 fully functional; 1 failover; one restricted to a backup interface) to 20 fully functional interfaces. In addition, the number of trunk ports was increased from 1 to 8. • VLAN limits were increased for the ASA 5510 (from 10 to 50 for the Base license, and from 25 to 100 for the Security Plus license), the ASA 5520 (from 100 to 150), and the ASA 5550 (from 200 to 250).
7.2(3)	The ASA 5510 supports GE (Gigabit Ethernet) for port 0 and 1 with the Security Plus license. If you upgrade the license from Base to Security Plus, the capacity of the external Ethernet0/0 and Ethernet0/1 ports increases from the original FE (Fast Ethernet) (100 Mbps) to GE (1000 Mbps). The interface names will remain Ethernet 0/0 and Ethernet 0/1. Use the **speed** command to change the speed on the interface and use the **show interface** command to see what speed is currently configured for each interface.
8.0(2)	• The Advanced Endpoint Assessment license was introduced. • VPN load balancing is supported on the ASA 5510 Security Plus license.
8.0(3)	The AnyConnect for Mobile license was introduced.
8.0(4)/8.1(2)	Support for time-based licenses was introduced.
8.1(2)	The number of VLANs supported on the ASA 5580 increased from 100 to 250.
8.0(4)	The UC Proxy sessions license was introduced.
8.2(1)	• The Botnet Traffic Filter license was introduced. • The AnyConnect Essentials License was introduced. By default, the ASA uses the AnyConnect Essentials license, but you can disable it to use other licenses by using the **no anyconnect-essentials** command. • Shared licenses for SSL VPN were introduced.
8.2(2)	The Mobility Proxy no longer requires the UC Proxy license.

Release	Modification
8.3(1)	• Failover licenses no longer need to be identical on each unit. The license used for both units is the combined license from the primary and secondary units. • Time-based licenses are stackable. • The IME license was introduced. • You can install multiple time-based licenses, and have one license per feature active at a time. • You can activate or deactivate time-based licenses using **activate** or **deactivate** keywords.
8.4(1)	• For the ASA 5550 and ASA 5585-X with SSP-10, the maximum number of contexts was increased from 50 to 100. For the ASA 5580 and 5585-X with SSP-20 and higher, the maximum was increased from 50 to 250. • For the ASA 5580 and 5585-X, the maximum number of VLANs was increased from 250 to 1024. • We increased the firewall connection limits: – ASA 5580-20—1,000 K to 2,000 K. – ASA 5580-40—2,000 K to 4,000 K. – ASA 5585-X with SSP-10: 750 K to 1,000 K – ASA 5585-X with SSP-20: 1,000 K to 2,000 K – ASA 5585-X with SSP-40: 2,000 K to 4,000 K – ASA 5585-X with SSP-60: 2,000 K to 10,000 K • For the ASA 5580, the AnyConnect VPN session limit was increased from 5,000 to 10,000. • For the ASA 5580, the other VPN session limit was increased from 5,000 to 10,000. • IPsec remote access VPN using IKEv2 was added to the AnyConnect Essentials and AnyConnect Premium licenses. • Site-to-site sessions were added to the Other VPN license (formerly IPsec VPN). • For models available with No Payload Encryption (for example, the ASA 5585-X), the ASA software disables Unified Communications and VPN features, making the ASA available for export to certain countries.

Usage Guidelines

Obtaining an Activation Key

To obtain an activation key, you need a Product Authorization Key, which you can purchase from your Cisco account representative. You need to purchase a separate Product Activation Key for each feature license. For example, if you have the Base License, you can purchase separate keys for Advanced Endpoint Assessment and for additional SSL VPN sessions.

After obtaining the Product Authorization Keys, register them on Cisco.com at one of the following URLs.

- If you are a registered user of Cisco.com, go to the following website:

  http://www.cisco.com/go/license

- If you are not a registered user of Cisco.com, go to the following website:

  http://www.cisco.com/go/license/public

Context Mode Guidelines

- In multiple context mode, apply the activation key in the system execution space.
- Shared licenses are not supported in multiple context mode.

Failover Guidelines

- Shared licenses are not supported in Active/Active mode.
- Failover units do not require the same license on each unit.

  Older versions of ASA software required that the licenses match on each unit. Starting with Version 8.3(1), you no longer need to install identical licenses. Typically, you buy a license only for the primary unit; for Active/Standby failover, the secondary unit inherits the primary license when it becomes active. If you have licenses on both units, they combine into a single running failover cluster license.

- For the ASA 5505 and 5510, both units require the Security Plus license; the Base license does not support failover, so you cannot enable failover on a standby unit that only has the Base license.

Upgrade and Downgrade Guidelines

Your activation key remains compatible if you upgrade to the latest version from any previous version. However, you might have issues if you want to maintain downgrade capability:

- Downgrading to Version 8.1 or earlier—After you upgrade, if you activate additional feature licenses that were introduced *before 8.2*, then the activation key continues to be compatible with earlier versions if you downgrade. However if you activate feature licenses that were introduced in *8.2 or later*, then the activation key is not backwards compatible. If you have an incompatible license key, then see the following guidelines:
  - If you previously entered an activation key in an earlier version, then the ASA uses that key (without any of the new licenses you activated in Version 8.2 or later).
  - If you have a new system and do not have an earlier activation key, then you need to request a new activation key compatible with the earlier version.
- Downgrading to Version 8.2 or earlier—Version 8.3 introduced more robust time-based key usage as well as failover license changes:
  - If you have more than one time-based activation key active, when you downgrade, only the most recently activated time-based key can be active. Any other keys are made inactive.
  - If you have mismatched licenses on a failover pair, then downgrading will disable failover. Even if the keys are matching, the license used will no longer be a combined license.

Additional Guidelines and Limitations

- The activation key is not stored in your configuration file; it is stored as a hidden file in flash memory.

- The activation key is tied to the serial number of the device. Feature licenses cannot be transferred between devices (except in the case of a hardware failure). If you have to replace your device due to a hardware failure, contact the Cisco Licensing Team to have your existing license transferred to the new serial number. The Cisco Licensing Team will ask for the Product Authorization Key reference number and existing serial number.
- Once purchased, you cannot return a license for a refund or for an upgraded license.
- Although you can activate all license types, some features are incompatible with each other; for example, multiple context mode and VPN. In the case of the AnyConnect Essentials license, the license is incompatible with the following licenses: full SSL VPN license, shared SSL VPN license, and Advanced Endpoint Assessment license. By default, the AnyConnect Essentials license is used instead of the above licenses, but you can disable the AnyConnect Essentials license in the configuration to restore use of the other licenses using the **no anyconnect-essentials** command.
- Some permanent licenses require you to reload the ASA after you activate them. Table 2-1 lists the licenses that require reloading.

Table 2-1 Permanent License Reloading Requirements

Model	License Action Requiring Reload
ASA 5505 and ASA 5510	Changing between the Base and Security Plus license.
All models	Changing the Encryption license.
All models	Downgrading any permanent license (for example, going from 10 contexts to 2 contexts).

Examples

The following example shows how to change the activation key on the ASA:

```
hostname# activation-key 0xd11b3d48 0xa80a4c0a 0x48e0fd1c 0xb0443480 0x843fc490
```

The following is sample output from the **activation-key** command that shows output for failover when the new activation key is different than the old activation key:

```
hostname# activation-key 0xyadayada 0xyadayada 0xyadayada 0xyadayada 0xyadayada

Validating activation key. This may take a few minutes...
The following features available in the running permanent activation key are NOT available
in the new activation key:
Failover is different.
   running permanent activation key: Restricted (R)
   new activation key: Unrestricted (UR)
WARNING: The running activation key was not updated with the requested key.
Proceed with updating flash activation key? [y]
Flash permanent activation key was updated with the requested key.
```

The following is sample output from a license file:

```
Serial Number Entered: 123456789ja
Number of Virtual Firewalls Selected: 10
Formula One device: ASA 5520

Failover                       : Enabled
VPN-DES                        : Enabled
VPN-3DES-AES                   : Enabled
Security Contexts              : 10
GTP/GPRS                       : Disabled
SSL VPN Peers                  : Default
```

```
Total VPN Peers                : 750
Advanced Endpoint Assessment   : Disabled
AnyConnect for Mobile          : Enabled
AnyConnect for Cisco VPN Phone : Disabled
Shared License                 : Disabled
UC Phone Proxy Sessions        : Default
Total UC Proxy Sessions        : Default
AnyConnect Essentials          : Disabled
Botnet Traffic Filter          : Disabled
Intercompany Media Engine      : Enabled

----------------------------------------
THE FOLLOWING ACTIVATION KEY IS VALID FOR:
ASA SOFTWARE RELEASE 8.2+ ONLY.

Platform = asa

123456789JA:yadayda1 yadayda1 yadayda1 yadayda1 yadayda1
----------------------------------------
THE FOLLOWING ACTIVATION KEY IS VALID FOR:
ALL ASA SOFTWARE RELEASES, BUT EXCLUDES ANY
8.2+ FEATURES FOR BACKWARDS COMPATIBILITY.

Platform = asa

123456789JA:yadayda2 yadayda2 yadayda2 yadayda2 yadayda2
```

Related Commands

Command	Description
anyconnect-essentials	Enables or disables the Anyconnect Essentials license.
show activation-key	Shows the activation key.
show version	Shows the software version and activation key.

activex-relay

To incorporate applications that need ActiveX over the clientless portal, use the **activex-relay** command in group-policy webvpn configuration mode or username webvpn configuration mode. To inherit the **activex-relay** command from the default group policy, use the **no** form of this command.

activex-relay {**enable** | **disable**}

no activex-relay

Syntax Description

enable	Enables ActiveX on WebVPN sessions.
disable	Disables ActiveX on WebVPN sessions.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy webvpn configuration	•	—	•	—	—
Username webvpn configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Use the **activex-relay enable** command to let users launch ActiveX from the WebVPN browser for any HTML content that has the object tags (such as images, audio, videos, JAVA applets, ActiveX, PDF, or flash). These applications use the WebVPN session to download and upload ActiveX controls. The ActiveX relay remains in force until the WebVPN session closes. If you plan to use something like Microsoft OWA 2007, you should disable ActiveX.

Note Because they have the same functionality, the **activex-relay enable** command generates smart tunnel logs even if smart tunnel is disabled.

The following example enables ActiveX controls on WebVPN sessions associated with a given group policy:

```
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# activex-relay enable
```

The following example disables ActiveX controls on WebVPN sessions associated with a given username:

```
hostname(config-username-policy)# webvpn
hostname(config-username-webvpn)# activex-relay disable
```

ad-agent-mode

To enables the AD Agent mode so that you can configure the Active Directory Agent for the Cisco Identify Firewall instance, use the **ad-agent-mode** command in global configuration mode.

ad-agent-mode

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

To configure the Active Directory Agent for the Identity Firewall, you must enter the **ad-agent-mode** command, which is a submode of the **aaa-server** command. Entering the **ad-agent-mode** command enters the aaa server group configuration mode.

Periodically or on-demand, the AD Agent monitors the Active Directory server security event log file via WMI for user login and logoff events. The AD Agent maintains a cache of user ID and IP address mappings. and notifies the ASA of changes.

Configure the primary and secondary AD Agents for the AD Agent Server Group. When the ASA detects that the primary AD Agent is not responding and a secondary agent is specified, the ASA switches to the secondary AD Agent. The Active Directory server for the AD agent uses RADIUS as the communication protocol; therefore, you should specify a key attribute for the shared secret between the ASA and AD Agent.

Examples

The following example shows how to enable **ad-agent-mode** while configuring the Active Directory Agent for the Identity Firewall:

```
hostname(config)# aaa-server adagent protocol radius
hostname(config)# ad-agent-mode
hostname(config-aaa-server-group)# aaa-server adagent (inside) host 192.168.1.101
hostname(config-aaa-server-host)# key mysecret
hostname(config-aaa-server-hostkey)# user-identity ad-agent aaa-server adagent
hostname(config-aaa-server-host)# test aaa-server ad-agent
```

Related Commands

Command	Description
aaa-server	Creates a AAA server group and configures AAA server parameters that are group-specific and common to all group hosts.
clear configure user-identity	Clears the configuration for the Identity Firewall feature.

address (dynamic-filter blacklist or whitelist)

To add an IP address to the Botnet Traffic Filter blacklist or whitelist, use the **address** command in dynamic-filter blacklist or whitelist configuration mode. To remove the address, use the **no** form of this command.

address *ip_address mask*

no address *ip_address mask*

Syntax Description

ip_address	Adds an IP address to the blacklist.
mask	Defines the subnet mask for the IP address. The *mask* can be for a single host or for a subnet.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Dynamic-filter blacklist or whitelist configuration	•	•	•	•	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

The static database lets you augment the dynamic database with domain names or IP addresses that you want to whitelist or blacklist. After you enter the dynamic-filter whitelist or blacklist configuration mode, you can manually enter domain names or IP addresses (host or subnet) that you want to tag as good names in a whitelist or bad names in a blacklist using the **address** and **name** commands.

You can enter this command multiple times for multiple entries. You can add up to 1000 blacklist and 1000 whitelist entries.

Examples

The following example creates entries for the blacklist and whitelist:

```
hostname(config)# dynamic-filter blacklist
hostname(config-llist)# name bad1.example.com
hostname(config-llist)# name bad2.example.com
hostname(config-llist)# address 10.1.1.1 255.255.255.0
hostname(config-llist)# dynamic-filter whitelist
hostname(config-llist)# name good.example.com
hostname(config-llist)# name great.example.com
```

```
hostname(config-llist)# name awesome.example.com
hostname(config-llist)# address 10.1.1.2 255.255.255.255
```

Related Commands

Command	Description
clear configure dynamic-filter	Clears the running Botnet Traffic Filter configuration.
clear dynamic-filter dns-snoop	Clears Botnet Traffic Filter DNS snooping data.
clear dynamic-filter reports	Clears Botnet Traffic filter report data.
clear dynamic-filter statistics	Clears Botnet Traffic filter statistics.
dns domain-lookup	Enables the ASA to send DNS requests to a DNS server to perform a name lookup for supported commands.
dns server-group	Identifies a DNS server for the ASA.
dynamic-filter blacklist	Edits the Botnet Traffic Filter blacklist.
dynamic-filter database fetch	Manually retrieves the Botnet Traffic Filter dynamic database.
dynamic-filter database find	Searches the dynamic database for a domain name or IP address.
dynamic-filter database purge	Manually deletes the Botnet Traffic Filter dynamic database.
dynamic-filter enable	Enables the Botnet Traffic Filter for a class of traffic or for all traffic if you do not specify an access list.
dynamic-filter updater-client enable	Enables downloading of the dynamic database.
dynamic-filter use-database	Enables use of the dynamic database.
dynamic-filter whitelist	Edits the Botnet Traffic Filter whitelist.
inspect dns dynamic-filter-snoop	Enables DNS inspection with Botnet Traffic Filter snooping.
name	Adds a name to the blacklist or whitelist.
show asp table dynamic-filter	Shows the Botnet Traffic Filter rules that are installed in the accelerated security path.
show dynamic-filter data	Shows information about the dynamic database, including when the dynamic database was last downloaded, the version of the database, how many entries the database contains, and 10 sample entries.
show dynamic-filter dns-snoop	Shows the Botnet Traffic Filter DNS snooping summary, or with the **detail** keyword, the actual IP addresses and names.
show dynamic-filter reports	Generates reports of the top 10 botnet sites, ports, and infected hosts.
show dynamic-filter statistics	Shows how many connections were monitored with the Botnet Traffic Filter, and how many of those connections match the whitelist, blacklist, and greylist.
show dynamic-filter updater-client	Shows information about the updater server, including the server IP address, the next time the ASA will connect with the server, and the database version last installed.
show running-config dynamic-filter	Shows the Botnet Traffic Filter running configuration.

address (media-termination)

To specify the address for a media termination instance to use for media connections to the Phone Proxy feature, use the **address** command in the media-termination configuration mode. To remove the address from the media termination configuration, use the **no** form of this command.

address *ip_address* [**interface** *intf_name*]

no address *ip_address* [**interface** *intf_name*]

Syntax Description

interface *intf_name*	Specifies the name of the interface for which the media termination address is used. Only one media-termination address can be configured per interface.
ip_address	Specifies the IP address to use for the media termination instance.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Media-termination configuration	•	—	•	—	—

Command History

Release	Modification
8.2(1)	The command was introduced.

Usage Guidelines

The ASA must have IP addresses for media termination that meet the following criteria:

- For the media termination instance, you can configure a global media-termination address for all interfaces or configure a media-termination address for different interfaces. However, you cannot use a global media-termination address and media-termination addresses configured for each interface at the same time.
- If you configure a media termination address for multiple interfaces, you must configure an address on each interface that the ASA uses when communicating with IP phones.
- The IP addresses are publicly routable addresses that are unused IP addresses within the address range on that interface.

See the CLI configuration guide for the complete list of prerequisites that you must follow when creating the media termination instance and configuring the media termination addresses.

Examples

The following example shows the use of the media-termination address command to specify the IP address to use for media connections:

```
hostname(config)# media-termination mediaterm1
hostname(config-media-termination)# address 192.0.2.25 interface inside
hostname(config-media-termination)# address 10.10.0.25 interface outside
```

Related Commands

Command	Description
phone-proxy	Configures the Phone Proxy instance.
media-termination	Configures the media termination instance to apply to a Phone Proxy instance.

address-pool (tunnel-group general attributes mode)

To specify a list of address pools for allocating addresses to remote clients, use the **address-pool** command in tunnel-group general-attributes configuration mode. To eliminate address pools, use the **no** form of this command.

address-pool [(*interface name*)] *address_pool1* [*...address_pool6*]

no address-pool [(*interface name*)] *address_pool1* [*...address_pool6*]

Syntax Description

address_pool	Specifies the name of the address pool configured with the **ip local pool** command. You can specify up to 6 local address pools.
interface name	(Optional) Specifies the interface to be used for the address pool.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Tunnel-group general-attributes configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You can enter multiples of each of these commands, one per interface. If an interface is not specified, then the command specifies the default for all interfaces that are not explicitly referenced.

The address-pools settings in the group-policy **address-pools** command override the local pool settings in the tunnel group **address-pool** command.

The order in which you specify the pools is significant. The ASA allocates addresses from these pools in the order in which the pools appear in this command.

Examples

The following example entered in config-tunnel-general configuration mode, specifies a list of address pools for allocating addresses to remote clients for an IPsec remote-access tunnel group test:

```
hostname(config)# tunnel-group test type remote-access
hostname(config)# tunnel-group test general
hostname(config-tunnel-general)# address-pool (inside) addrpool1 addrpool2 addrpool3
hostname(config-tunnel-general)#
```

Related Commands

Command	Description
ip local pool	Configures IP address pools to be used for VPN remote-access tunnels.
clear configure tunnel-group	Clears all configured tunnel groups.
show running-config tunnel-group	Shows the tunnel group configuration for all tunnel groups or for a particular tunnel group.
tunnel-group-map default-group	Associates the certificate map entries created using the **crypto ca certificate map** command with tunnel groups.

address-pools (group-policy attributes configuration mode)

To specify a list of address pools for allocating addresses to remote clients, use the **address-pools** command in group-policy attributes configuration mode. To remove the attribute from the group policy and enable inheritance from other sources of group policy, use the **no** form of this command.

address-pools value *address_pool1* [*...address_pool6*]

no address-pools value *address_pool1* [*...address_pool6*]

address-pools none

no address-pools none

Syntax Description

address_pool	Specifies the name of the address pool configured with the **ip local pool** command. You can specify up to 6 local address pools.
none	Specifies that no address pools are configured and disables inheritance from other sources of group policy.
value	Specifies a list of up to 6 address pools from which to assign addresses.

Defaults

By default, the address pool attribute allows inheritance.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy attributes configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

The address pools settings in this command override the local pool settings in the group. You can specify a list of up to six local address pools to use for local address allocation.

The order in which you specify the pools is significant. The ASA allocates addresses from these pools in the order in which the pools appear in this command.

The command **address-pools none** disables this attribute from being inherited from other sources of policy, such as the DefaultGrpPolicy. The command **no address pools none** removes the **address-pools none** command from the configuration, restoring the default value, which is to allow inheritance.

Examples

The following example entered in config-general configuration mode, configures pool_1 and pool_20 as lists of address pools to use for allocating addresses to remote clients for GroupPolicy1:

```
hostname(config)# ip local pool pool_1 192.168.10.1-192.168.10.100 mask 255.255.0.0
hostname(config)# ip local pool pool_20 192.168.20.1-192.168.20.200 mask 255.255.0.0
hostname(config)# group-policy GroupPolicy1 attributes
hostname(config-group-policy)# address-pools value pool_1 pool_20
hostname(config-group-policy)#
```

Related Commands

Command	Description
ip local pool	Configures IP address pools to be used for VPN group policies.
clear configure group-policy	Clears all configured group policies.
show running-config group-policy	Shows the configuration for all group policies or for a particular group policy.

admin-context

To set the admin context for the system configuration, use the **admin-context** command in global configuration mode.

admin-context *name*

Syntax Description

name	Sets the name as a string up to 32 characters long. If you have not defined any contexts yet, then first specify the admin context name with this command. Then, the first context you add using the **context** command must be the specified admin context name. This name is case sensitive, so you can have two contexts named "customerA" and "CustomerA," for example. You can use letters, digits, or hyphens, but you cannot start or end the name with a hyphen. "System" or "Null" (in upper or lowercase letters) are reserved names, and cannot be used.

Defaults

For a new ASA in multiple context mode, the admin context is called "admin."

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You can set any context to be the admin context, as long as the context configuration resides on the internal flash memory.

You cannot remove the current admin context, unless you remove all contexts using the **clear configure context** command.

The system configuration does not include any network interfaces or network settings for itself; rather, when the system needs to access network resources (such as downloading the ASA software or allowing remote management for an administrator), it uses one of the contexts that is designated as the admin context.

Examples

The following example sets the admin context to be "administrator":

```
hostname(config)# admin-context administrator
```

Related Commands

Command	Description
clear configure context	Removes all contexts from the system configuration.
context	Configures a context in the system configuration and enters context configuration mode.
show admin-context	Shows the current admin context name.

allocate-interface

To allocate interfaces to a security context, use the **allocate-interface** command in context configuration mode. To remove an interface from a context, use the **no** form of this command.

allocate-interface *physical_interface* [*map_name*] [**visible** | **invisible**]

no allocate-interface *physical_interface*

allocate-interface *physical_interface*.*subinterface*[-*physical_interface*.*subinterface*] [*map_name*[-*map_name*]] [**visible** | **invisible**]

no allocate-interface *physical_interface*.*subinterface*[-*physical_interface*.*subinterface*]

Syntax Description

invisible	(Default) Allows context users to only see the mapped name (if configured) in the **show interface** command.

map_name	(Optional) Sets a mapped name.
	
	The *map_name* is an alphanumeric alias for the interface that can be used within the context instead of the interface ID. If you do not specify a mapped name, the interface ID is used within the context. For security purposes, you might not want the context administrator to know which interfaces are being used by the context.
	
	A mapped name must start with a letter, end with a letter or digit, and have as interior characters only letters, digits, or an underscore. For example, you can use the following names:
	
	`int0`
	
	`inta`
	
	`int_0`
	
	For subinterfaces, you can specify a range of mapped names.
	
	See the "Usage Guidelines" section for more information about ranges.

physical_interface	Sets the interface ID, such as **gigabitethernet0/1**. See the **interface** command for accepted values. Do not include a space between the interface type and the port number.
subinterface	Sets the subinterface number. You can identify a range of subinterfaces.
visible	(Optional) Allows context users to see physical interface properties in the **show interface** command even if you set a mapped name.

Defaults

The interface ID is invisible in the **show interface** command output by default if you set a mapped name.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Context configuration	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You can enter this command multiple times to specify different ranges. To change the mapped name or visible setting, reenter the command for a given interface ID, and set the new values; you do not need to enter the **no allocate-interface** command and start over. If you remove the **allocate-interface** command, the ASA removes any interface-related configuration in the context.

Transparent firewall mode allows only two interfaces to pass through traffic; however, on the ASA , you can use the dedicated management interface, Management 0/0, (either the physical interface or a subinterface) as a third interface for management traffic.

Note The management interface for transparent mode does not flood a packet out the interface when that packet is not in the MAC address table.

You can assign the same interfaces to multiple contexts in routed mode, if desired. Transparent mode does not allow shared interfaces.

If you specify a range of subinterfaces, you can specify a matching range of mapped names. Follow these guidelines for ranges:

- The mapped name must consist of an alphabetic portion followed by a numeric portion. The alphabetic portion of the mapped name must match for both ends of the range. For example, enter the following range:

  ```
  int0-int10
  ```

  If you enter **gigabitethernet0/1.1-gigabitethernet0/1.5 happy1-sad5**, for example, the command fails.

- The numeric portion of the mapped name must include the same quantity of numbers as the subinterface range. For example, both ranges include 100 interfaces:

  ```
  gigabitethernet0/0.100-gigabitethernet0/0.199 int1-int100
  ```

  If you enter **gigabitethernet0/0.100-gigabitethernet0/0.199 int1-int15**, for example, the command fails.

Examples

The following example shows gigabitethernet0/1.100, gigabitethernet0/1.200, and gigabitethernet0/2.300 through gigabitethernet0/1.305 assigned to the context. The mapped names are int1 through int8.

```
hostname(config-ctx)# allocate-interface gigabitethernet0/1.100 int1
```

```
hostname(config-ctx)# allocate-interface gigabitethernet0/1.200 int2
hostname(config-ctx)# allocate-interface gigabitethernet0/2.300-gigabitethernet0/2.305
int3-int8
```

Related Commands

Command	Description
context	Creates a security context in the system configuration and enters context configuration mode.
interface	Configures an interface and enters interface configuration mode.
show context	Shows a list of contexts (system execution space) or information about the current context.
show interface	Displays the runtime status and statistics of interfaces.
vlan	Assigns a VLAN ID to a subinterface.

allocate-ips

To allocate an IPS virtual sensor to a security context if you have the AIP SSM installed, use the **allocate-ips** command in context configuration mode. To remove a virtual sensor from a context, use the **no** form of this command.

allocate-ips *sensor_name* [*mapped_name*] [**default**]

no allocate-ips *sensor_name* [*mapped_name*] [**default**]

Syntax Description

default	(Optional) Sets one sensor per context as the default sensor; if the context configuration does not specify a sensor name, the context uses this default sensor. You can only configure one default sensor per context. If you want to change the default sensor, enter the **no allocate-ips** command to remove the current default sensor before you allocate a new default sensor. If you do not specify a sensor as the default, and the context configuration does not include a sensor name, then traffic uses the default sensor on the AIP SSM.
mapped_name	(Optional) Sets a mapped name as an alias for the sensor name that can be used within the context instead of the actual sensor name. If you do not specify a mapped name, the sensor name is used within the context. For security purposes, you might not want the context administrator to know which sensors are being used by the context. Or you might want to genericize the context configuration. For example, if you want all contexts to use sensors called “sensor1” and “sensor2,” then you can map the “highsec” and “lowsec” senors to sensor1 and sensor2 in context A, but map the “medsec” and “lowsec” sensors to sensor1 and sensor2 in context B.
sensor_name	Sets the sensor name configured on the AIP SSM. To view the sensors that are configured on the AIP SSM, enter **allocate-ips ?**. All available sensors are listed. You can also enter the **show ips** command. In the system execution space, the **show ips** command lists all available sensors; if you enter it in the context, it shows the sensors you already assigned to the context. If you specify a sensor name that does not yet exist on the AIP SSM, you get an error, but the **allocate-ips** command is entered as-is. Until you create a sensor of that name on the AIP SSM, the context assumes the sensor is down.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Context configuration	•	•	—	—	•

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

You can assign one or more IPS virtual sensors to each context. Then, when you configure the context to send traffic to the AIP SSM using the **ips** command, you can specify a sensor that is assigned to the context; you cannot specify a sensor that you did not assign to the context. If you do not assign any sensors to a context, then the default sensor configured on the AIP SSM is used. You can assign the same sensor to multiple contexts.

Note You do not need to be in multiple context mode to use virtual sensors; you can be in single mode and use different sensors for different traffic flows.

Examples

The following example assigns sensor1 and sensor2 to context A, and sensor1 and sensor3 to context B. Both contexts map the sensor names to "ips1" and "ips2." In context A, sensor1 is set as the default sensor, but in context B, no default is set so the default that is configured on the AIP SSM is used.

```
hostname(config-ctx)# context A
hostname(config-ctx)# allocate-interface gigabitethernet0/0.100 int1
hostname(config-ctx)# allocate-interface gigabitethernet0/0.102 int2
hostname(config-ctx)# allocate-interface gigabitethernet0/0.110-gigabitethernet0/0.115
int3-int8
hostname(config-ctx)# allocate-ips sensor1 ips1 default
hostname(config-ctx)# allocate-ips sensor2 ips2
hostname(config-ctx)# config-url ftp://user1:passw0rd@10.1.1.1/configlets/test.cfg
hostname(config-ctx)# member gold

hostname(config-ctx)# context sample
hostname(config-ctx)# allocate-interface gigabitethernet0/1.200 int1
hostname(config-ctx)# allocate-interface gigabitethernet0/1.212 int2
hostname(config-ctx)# allocate-interface gigabitethernet0/1.230-gigabitethernet0/1.235
int3-int8
hostname(config-ctx)# allocate-ips sensor1 ips1
hostname(config-ctx)# allocate-ips sensor3 ips2
hostname(config-ctx)# config-url ftp://user1:passw0rd@10.1.1.1/configlets/sample.cfg
hostname(config-ctx)# member silver
```

Related Commands

Command	Description
context	Creates a security context in the system configuration and enters context configuration mode.
ips	Diverts traffic to the AIP SSM for inspection.
show context	Shows a list of contexts (system execution space) or information about the current context.
show ips	Shows the virtual sensors configured on the AIP SSM.

allow-ssc-mgmt

To set an interface on the ASA 5505 to be the SSC management interface, use the **allow-ssc-mgmt** command in interface configuration mode. To unassign an interface, use the **no** form of this command.

allow-ssc-mgmt

no allow-ssc-mgmt

Syntax Description

This command has no arguments or keywords.

Command Default

This command is enabled in the factory default configuration for VLAN 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	—	—

Command History

Release	Modification
8.2(1)	We introduced this command.

Usage Guidelines

An SSC does not have any external interfaces. You can configure a VLAN as a management VLAN to allow access to an internal management IP address over the backplane. By default, VLAN 1 is enabled for the SSC management address. You can only assign one VLAN as the SSC management VLAN.

Do not configure NAT for the management address if you intend to access it using ASDM. For initial setup with ASDM, you need to access the real address. After initial setup (where you set the password in the SSC), you can configure NAT and supply ASDM with the translated address when you want to access the SSC.

Examples

The following example disables management access on VLAN 1, and enables it for VLAN 2:

```
hostname(config)# interface vlan 1
hostname(config-if)# no allow-ssc-mgmt
hostname(config-if)# interface vlan 2
hostname(config-if)# allow-ssc-mgmt
```

Related Commands

Command	Description
interface	Configures an interface.
ip address	Sets the management IP address for a bridge group.
nameif	Sets the interface name.
security-level	Sets the interface security level.
hw-module module ip	Configures the management IP address for the SSC.
hw-module module allow-ip	Sets the hosts that are allowed to access the management IP address.

always-on-vpn

To configure the behavior of the AnyConnect Always-On-VPN functionality, use the **always-on-vpn** command in group policy configuration mode.

always-on-vpn [**profile-setting** | **disable**]

Syntax Description

disable	Switches off the Always-On-VPN functionality.
profile-setting	Uses the **always-on-vpn** setting configured in the AnyConnect profile.

Command Default

Always-On-VPN functionality is switched off by default.

Command History

Release	Modification
8.3(1)	We introduced this command.

Usage Guidelines

To enable Always-On-VPN functionality for AnyConnect users, configure an AnyConnect profile in the profile editor. Then configure the group-policy attributes for the appropriate policy.

Examples

The following example disables management access on VLAN 1, and enables it for VLAN 2:

```
hostname(config)# group-policy <group policy> attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# always-on-vpn profile-setting
```

Related Commands

Command	Description
webvpn	Configures group policy for WebVPN.

anyconnect ask

To enable the ASA to prompt remote SSL VPN client users to download the client, use the **anyconnect ask** command in group policy webvpn or username webvpn configuration modes. To remove the command from the configuration, use the **no** form of the command.

anyconnect ask {**none** | **enable** [**default** {**webvpn** | **anyconnect**} **timeout** *value*]}

no anyconnect ask none [**default** {**webvpn** | **anyconnect**}]

Syntax Description

default anyconnect timeout *value*	Prompts the remote user to download the client or goes to the portal page for clientless connections, and waits the duration of *value* before taking the default action—downloading the client.
default webvpn timeout *value*	Prompts the remote user to download the client or goes to the portal page for clientless connections, and waits the duration of *value* before taking the default action—displaying the WebVPN portal page.
enable	Prompts the remote user to download the client or goes to the portal page for clientless connections and waits indefinitely for user response.
none	Immediately performs the default action.

Defaults

The default for this command is **anyconnect ask none default webvpn**. The ASA immediately displays the portal page for clientless connections.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Group policy webvpn configuration	•	—	•	—	—
Username webvpn configuration	•	—	•	—	—

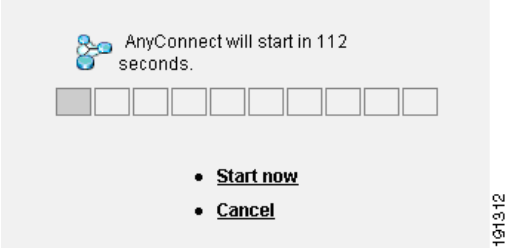
Command History

Release	Modification
8.0(2)	This command was introduced.
8.4(1)	The **anyconnect ask** command replaced the **svc ask** command.

Usage Guidelines

Figure 2-1 shows the prompt displayed to remote users when either the **default anyconnect timeout** *value* command or **default webvpn timeout** *value* command is configured:

Figure 2-1 Prompt Displayed to Remote Users for SSL VPN Client Download



Examples

The following example configures the ASA to prompt the remote user to download the client or go to the portal page and to wait 10 seconds for user response before downloading the client:

```
hostname(config-group-webvpn)# anyconnect ask enable default svc timeout 10
```

Related Commands

Command	Description
show webvpn anyconnect	Displays information about installed SSL VPN clients.
anyconnect	Enables or requires the SSL VPN client for a specific group or user.
anyconnect image	Specifies a client package file that the ASA expands in cache memory for downloading to remote PCs.

anyconnect-custom

To set or update the value of a custom attribute, use the **anyconnect-custom** command in Anyconnect-custom-attr configuration mode. To remove the value of a custom attribute, use the **no** form of this command.

anyconnect-custom *attr-name* **value** *attr-value*

anyconnect-custom *attr-name* **none**

no anyconnect-custom *attr-name*

Syntax Description

attr-name	The name of the attribute in the current group policy, as defined by the **anyconnnect custom-attr** command.
none	Immediately performs the default action.
value *attr-value*	A string containing the attribute value. The value is associated with the attribute name and passed to the client during connection setup. The maximum length is 450 characters.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Anyconnect-custom-attr configuration	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

This command sets the value of a custom attribute in a group policy. The *AnyConnect Administrator's Guide* lists which values are valid for the custom attributes that apply to that release. Custom attributes are created with the **anyconnect custom-attr** command.

Multiple instances of this command are supported to build a multiline value for an attribute. All data associated with a given attribute name is delivered to the client in the order that it is entered in the CLI. Individual lines of a multiline value can not be removed.

The **no** form of this command does not allow the **value** or **none** keywords.

If the data associated with an attribute name is entered in multiple CLI lines, it will be sent to the endpoint as a single concatenated string delimited by the newline character (\n).

Examples

The following example configures a custom attribute for an AnyConnect Deferred Update:

```
hostname(config-group-policy)# anyconnect-custom DeferredUpdateAllowed true
```

Related Commands

Command	Description
show run webvpn	Displays configuration information about WebVPN, including **anyconnect** commands.
show run group-policy	Displays configuration information about current group policies.
anyconnect custom-attr	Creates custom attributes.

anyconnect custom-attr

To create custom attributes, use the **anyconnect-custom-attr** command in Anyconnect-custom-attr configuration mode. To remove custom attributes, use the **no** form of this command.

[no] anyconnect-custom-attr *attr-name* **[description** *description***]**

Syntax Description

attr-name	The name of the attribute. This name is referenced in the group policy syntax and in the aggregate auth protocol messages. The maximum length is 32 characters.
description *description*	A free form description of attribute usage. This text appears in the command help when the custom attribute is referenced from the group-policy attribute configuration mode. The maximum length is 96 characters.
none	Immediately performs the default action.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Anyconnect-custom-attr configuration	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

This command creates custom attributes to support special AnyConnect features. After creating custom attributes for a particular feature, you add them to group policies, so that feature can be applied to VPN clients. This command guarantees that all of the defined attribute names are unique.

Some versions of AnyConnect use custom attributes to configure features. The release notes and *AnyConnect Administrator's Guide* for each version list any features that require custom attributes.

If you try to remove the definition of attribute that is being used in a group policy, an error message will be displayed, and the action will fail. If a user attempts to add an attribute that already exists as a custom attribute, any changes to the description will be incorporated, but the command will otherwise be ignored.

Examples

The following example configures a custom attribute for AnyConnect Deferred Update:

```
hostname(config-webvpn)# anyconnect DeferredUpdateAllowed description "Indicates if the deferred update feature is enabled or not"
```

Related Commands

Command	Description
show run webvpn	Displays configuration information about WebVPN, including **anyconnect** commands.
show run group-policy	Displays configuration information about current group policies.
anyconnect custom	Sets values of custom attributes.

anyconnect df-bit-ignore

To ignore the DF bit in packets that need fragmentation, use the **anyconnect-df-bit-ignore** command in group policy webvpn configuration mode. To acknowledge the DF bits that need fragmentation, use the **no** form of the command.

anyconnect df-bit-ignore {enable | none}

no anyconnect df-bit-ignore {enable | none}

Syntax Description

enable	Enables DF-bit ignore for AnyConnect client.
none	Disables DF-bit for AnyConnect client.

Defaults

By default, this option is not enabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Group policy webvpn configuration	•	—	•	—	—

Command History

Release	Modification
8.2(2)	The **svc df-bit-ignore** command was introduced.
8.4(3)	The **anyconnect df-bit-ignore** command replaced the **svc df-bit-ignore** command.

Examples

```
vmb-5520(config-group-webvpn)# anyconnect routing-filtering-ignore ?

config-group-webvpn mode commands/options:
  enable  Enable Routing/Filtering for AnyConnect Client
  none    Disable Routing/Filtering for AnyConnect Client
```

anyconnect dpd-interval

To enable Dead Peer Detection (DPD) on the ASA and to set the frequency that either the remote client or the ASA performs DPD over SSL VPN connections, use the **anyconnect dpd-interval** command in group policy webvpn or username webvpn configuration mode. To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command.

anyconnect dpd-interval {[**gateway** {*seconds* | **none**}] | [**client** {*seconds* | **none**}]}

no anyconnect dpd-interval {[**gateway** {*seconds* | **none**}] | [**client** {*seconds* | **none**}]}

Syntax Description

client none	Disables the DPD that the client performs.
client *seconds*	Specifies the frequency, from 30 to 3600 seconds, for which the client performs DPD.
gateway none	Disables DPD that the ASA performs.
gateway *seconds*	Specifies the frequency, from 30 to 3600 seconds, for which the ASA performs DPD.

Defaults

The default is DPD is enabled and set to 30 seconds for both the ASA (gateway) and the client.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Group policy webvpn configuration	•	—	•	—	—
Username webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.
8.0(3)	The default setting changed from disabled to 30 seconds for both the ASA (gateway) and the client.
8.4(1)	The **anyconnect dpd-interval** command replaced the **svc dpd-interval** command.

Examples

The following example shows how to configure the DPD frequency performed by the ASA (gateway) to 3000 seconds, and the DPD frequency performed by the client to 1000 seconds, for the existing group policy *sales*:

```
hostname(config)# group-policy sales attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# anyconnect dpd-interval gateway 3000
hostname(config-group-webvpn)# anyconnect dpd-interval client 1000
```

anyconnect dtls compression

To enable compression on low bandwidth links for a specific group or user, use the **anyconnect dtls compression** command in group policy webvpn or username webvpn configuration mode. To delete the configuration from the group, use the **no** form of the command.

anyconnect dtls compression {lzs | none}

no anyconnect dtls compression {lzs | none}

Syntax Description

lzs	Enables a stateless compression algorithm.
none	Disables compression.

Defaults

The default is to not enable AnyConnect compression.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Group policy webvpn configuration	•	—	•	—	—
Username webvpn configuration	•	—	•	—	—

Command History

Release	Modification
8.4(2)	The **anyconnect dtls compression** command was introduced.

Examples

The following examples shows the sequence to disable compression:

```
asa# config terminal
asa(config)# group-policy DfltGrpPolicy attributes
asa(config-group-policy)# webvpn
asa(config-group-webvpn)# anyconnect ssl compression none
asa(config-group-webvpn)# anyconnect dtls compression none
```

anyconnect enable

To enable the ASA to download an AnyConnect client to remote computers or to connect to the ASA using the AnyConnect client with SSL or IKEv2, use the **anyconnect enable** command in webvpn configuration mode. To remove the command from the configuration, use the **no** form of the command.

anyconnect enable

no anyconnect enable

Defaults

The default for this command is disabled. The ASA does not download the client.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced as **svc enable**.
8.4(1)	The **anyconnect enable** command replaced the **svc enable** command.

Usage Guidelines

Entering the **no anyconnect enable** command does not terminate active sessions.

The **anyconnect enable** command must be issued after configuring the AnyConnect images with the **anyconnect image xyz** command. To use an AnyConnect client or AnyConnect weblaunch, **anyconnect enable** is required. If the **anyconnect enable** command is not issued with SSL or IKEv2, AnyConnect does not function as expected and times out with an IPsec VPN connection termination error. As a result, the **show webvpn svc** command does not consider the SSL VPN client to be enabled and does not list the installed AnyConnect packages.

Examples

In the following example shows how to enable the ASA to download the client:

```
hostname(config)# webvpn
hostname(config-webvpn)# anyconnect enable
```

Related Commands

Command	Description
anyconnect image	Specifies an AnyConnect SSL VPN client package file that the ASA expands in cache memory for downloading to remote PCs.
anyconnect modules	Specifies the names of modules that the AnyConnect SSL VPN Client requires for optional features.

anyconnect profiles	Specifies the name of the file used to store profiles that the ASA downloads to the Cisco AnyConnect SSL VPN client.
show webvpn anyconnect	Displays information about SSL VPN clients installed on the ASA and loaded in cache memory for downloading to remote PCs.
anyconnect localization	Specifies the package file used to store localization files that are downloaded to the Cisco AnyConnect VPN Client.

anyconnect firewall-rule

To establish a public or provide ACL firewall, use the **anyconnect firewall-rule** command in either group policy webvpn or username webvpn configuration mode.

anyconnect firewall-rule client interface {public | private} *ACL*

Syntax Description

ACL	Specifies the access control list
client interface	Specify client interface
private	Configure private interface rule
public	Configure public interface rule

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Group policy webvpn configuration	•	—	•	—	—
Username webvpn configuration	•	—	•	—	—

Command History

Release	Modification
8.3(1)	This command was introduced.
8.4(1)	The **anyconnect firewall-rule** command replaced the **svc firewall-rule** command.
9.0(1)	The ACL in the command can now be a Unified Access Control rule that can specify both IPv4 and IPv6 addresses.

Usage Guidelines

To function as expected, this command requires a release of the AsyncOS for Web version 7.0 that provides AnyConnect Secure Mobility licensing support for the AnyConnect secure mobility client. It also requires an AnyConnect release that supports AnyConnect Secure Mobility, ASA 8.3, and ASDM 6.3.

The following notes clarify how the AnyConnect client uses the firewall:

- The source IP is not used for firewall rules. The client ignores the source IP information in the firewall rules sent from the ASA. The client determines the source IP depending on whether the rules are public or private. Public rules are applied to all interfaces on the client. Private rules are applied to the virtual adapter.

- The ASA supports many protocols for ACL rules. However, the AnyConnect firewall feature supports only TCP, UDP, ICMP, and IP. If the client receives a rule with a different protocol, it treats it as an invalid firewall rule, and then disables split tunneling and uses full tunneling for security reasons.

Be aware of the following differences in behavior for each operating system:

- For Windows computers, deny rules take precedence over allow rules in Windows Firewall. If the ASA pushes down an allow rule to the AnyConnect client, but the user has created a custom deny rule, the AnyConnect rule is not enforced.
- On Windows Vista, when a firewall rule is created, Vista takes the port number range as a comma-separated string (for example, from 1-300 or 5000-5300). The maximum number of ports allowed is 300. If you specify a number greater than 300 ports, the firewall rule is applied only to the first 300 ports.
- Windows users whose firewall service must be started by the AnyConnect client (not started automatically by the system) may experience a noticeable increase in the time it takes to establish a VPN connection.
- On Mac computers, the AnyConnect client applies rules sequentially in the same order that the ASA applies them. Global rules should always be last.
- For third-party firewalls, traffic is passed only if both the AnyConnect client firewall and the third-party firewall allow that traffic type. If the third-party firewall blocks a specify traffic type that the AnyConnect client allows, the client blocks the traffic.

For more information about the AnyConnect client firewall including ACL rule examples for local printing and tethered device support, see the *AnyConnect Administrator's Guide*.

Examples

The following example enables the ACL *AnyConnect_Client_Local_Print* as a public firewall:

```
hostname(config)# group-policy example_group attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# anyconnect firewall-rule client-interface public value
AnyConnect_Client_Local_Print
```

Related Commands

Command	Description
show webvpn anyconnect	Displays information about installed SSL VPN clients.
anyconnect	Enables or requires the SSL VPN client for a specific group or user.
anyconnect image	Specifies a client package file that the ASA expands in cache memory for downloading to remote PCs.

anyconnect image

To install or upgrade the AnyConnect distribution package and add it to the running configuration, use the **anyconnect image** command in webvpn configuration mode. To remove the AnyConnect distribution package from the running configuration, use the **no** form of the command.

anyconnect image *path order* [**regex** *expression*]

no anyconnect image *path order* [**regex** *expression*]

Syntax Description

order	With multiple client package files, specifies the order of the package files, from 1 to 65535. The ASA downloads portions of each client in the order you specify to the remote PC until it achieves a match with the operating system.
path	Specifies the path and filename of the AnyConnect package, up to 255 characters.
regex *expression*	Specifies a string that the ASA uses to match against the user-agent string passed by the browser.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced as **svc image**.
8.0(1)	The **regex** keyword was added.
8.4(1)	The **anyconnect image** command replaced the **svc image** command.

Usage Guidelines

Numbering the package files establishes the order in which the ASA downloads portions of them to the remote PC until it achieves a match with the operating system. It downloads the package file with the lowest number first. Therefore, you should assign the lowest number to the package file that matches the most commonly-encountered operating system used on remote PCs.

The default order is 1. If you do not specify the *order* argument, each time that you enter the **svc image** command, you overwrite the image that was previously considered number 1.

You can enter the **anyconnect image** command for each client package file in any order. For example, you can specify the package file to be downloaded second (*order* 2) before entering the **anyconnect image** command specifying the package file to be downloaded first (*order* 1).

For mobile users, you can decrease the connection time of the mobile device by using the **regex** keyword. When the browser connects to the ASA, it includes the user-agent string in the HTTP header. When the ASA receives the string, if the string matches an expression configured for an image, it immediately downloads that image without testing the other client images.

Note When using the standalone client, the **regex** command is ignored. It is used only for the web browser as a performance enhancement, and the regex string is not matched against any user or agent provided by the standalone client.

The ASA expands both AnyConnect client and Cisco Secure Desktop (CSD) package files in cache memory. For the ASA to successfully expand the package files, there must be enough cache memory to store the images and files of the package file.

If the ASA detects there is not enough cache memory to expand a package, it displays an error message to the console. The following example shows an error message reported after an attempt to install a package file with the **svc image** command:

```
hostname(config-webvpn)# anyconnect image disk0:/anyconnect-win-3.0.0520-k9.pkg
ERROR: File write error (check disk space)
ERROR: Unable to load SVC image - extraction failed
```

If this occurs when you attempt to install a package file, examine the amount of cache memory remaining and the size of any previously installed packages with the **dir cache:/** command in global configuration mode.

Note If your ASA has only the default internal flash memory size or the default DRAM size (for cache memory) you could have problems storing and loading multiple AnyConnect client packages on the ASA. Even if there is enough space in flash memory to hold the package files, the ASA could run out of cache memory when it unzips and loads the client images. For more information about the ASA memory requirements when deploying AnyConnect, and possibly upgrading the ASA memory, see the latest release notes for the Cisco ASA 5500 series.

Examples

The following example loads AnyConnect client package files for Windows, MAC, and Linux in that order:

```
hostname(config)# webvpn
hostname(config-webvpn)# anyconnect image disk0:/anyconnect-win-3.0.0527-k9.pkg 1
hostname(config-webvpn)# anyconnect image disk0:/anyconnect-macosx-i386-3.0.0414-k9.pkg 2
hostname(config-webvpn)# anyconnect image disk0:/anyconnect-linux-3.0.0414-k9.pkg 3
hostname(config-webvpn)
```

The following is sample output from the **show webvpn anyconnect** command, which displays the AnyConnect client packages loaded and their order:

```
hostname(config-webvpn)# show webvpn anyconnect
1. disk0:/anyconnect-win-3.0.0527-k9.pkg 1 dyn-regex=/Windows NT/
  CISCO STC win2k+
  3,0,0527
  Hostscan Version 3.0.0527
  Tue 10/19/2010 16:16:56.25

2. disk0:/anyconnect-macosx-i386-3.0.0414-k9.pkg 2 dyn-regex=/Intel Mac OS X/
  CISCO STC Darwin_i386
  3.0.0414
  Wed Oct 20 20:39:53 MDT 2010
```

```
3. disk0:/anyconnect-linux-3.0.0414-k9.pkg 3 dyn-regex=/Linux i[1-9]86/
  CISCO STC Linux
  3.0.0414
  Wed Oct 20 20:42:02 MDT 2010

3 AnyConnect Client(s) installed
hostname(config-webvpn)#
```

Related Commands

Command	Description
anyconnect modules	Specifies the names of modules that the AnyConnect SSL VPN Client requires for optional features.
anyconnect profiles	Specifies the name of the file used to store profiles that the ASA downloads to the Cisco AnyConnect SSL VPN client.
show webvpn anyconnect	Displays information about SSL VPN clients installed on the ASA and loaded in cache memory for downloading to remote PCs.
anyconnect localization	Specifies the package file used to store localization files that are downloaded to the Cisco AnyConnect VPN Client.

anyconnect keep-installer

Note This command does not apply to versions of AnyConnect after 2.5, but is still available for backward compatibility. Configuring the **anyconnect keep-installer** command does not affect AnyConnect 3.0 or later.

To enable the permanent installation of an SSL VPN client on a remote PC, use the **anyconnect keep-installer** command in group-policy webvpn or username webvpn configuration mode. To remove the command from the configuration and cause the value to be inherited, use the **no** form of this command.

anyconnect keep-installer {**installed** | **none**}

no anyconnect keep-installer {**installed** | **none**}

Syntax Description

installed	Disables the automatic uninstalling feature of the client. The client remains installed on the remote PC for future connections.
none	Specifies that the client uninstalls from the remote computer after the active connection terminates.

Defaults

The default is permanent installation of the client is enabled. The client remains on the remote computer at the end of the session.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group policy webvpn configuration	•	—	•	—	—
Username webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.
8.4(1)	The **anyconnect keep-installer** command replaced the **svc keep-installer** command.

Examples

In the following example, the user enters group policy webvpn configuration mode and configures the group policy to remove the client at the end of the session:

```
hostname(config-group-policy)#webvpn
hostname(config-group-webvpn)# anyconnect keep-installer none
hostname(config-group-webvpn)#
```

Related Commands

Command	Description
show webvpn anyconnect	Displays information about AnyConnect clients installed on the ASA and loaded in cache memory for downloading to remote PCs.
anyconnect	Enables or requires the SSL VPN client for a specific group or user.
anyconnect enable	Enables the ASA to download AnyConnect client files to remote PCs.
anyconnect image	Specifies an AnyConnect client package file that the ASA expands in cache memory for downloading to remote PCs.

anyconnect modules

To specify the names of modules that the AnyConnect SSL VPN Client requires for optional features, use the **anyconnect modules** command in group policy webvpn or username webvpn configuration mode. To remove the command from the configuration, use the **no** form of the command.

anyconnect modules {**none** | **value** *string*}

no anyconnect modules {**none** | **value** *string*}

Syntax Description

string	The name of the optional module, up to 256 characters. Separate multiple strings with commas.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group policy webvpn configuration	•	—	•	—	—
Username webvpn configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced as **svc modules**.
8.4(1)	The **anyconnect modules** command replaced the **svc modules** command.

Usage Guidelines

To minimize download time, the client only requests downloads (from the ASA) of modules that it needs for each feature that it supports. The **anyconnect modules** command enables the ASA to download these modules.

The following table shows the string values that represent AnyConnect Modules.

String representing AnyConnect Module	AnyConnect Module Name
dart	AnyConnect DART (Diagnostics and Reporting Tool)
nam	AnyConnect Network Access Manager
vpngina	AnyConnect SBL (Start Before Logon)
websecurity	AnyConnect Web Security Module
telemetry	AnyConnect Telemetry Module

posture	AnyConnect Posture Module
none	If you choose **none**, the ASA downloads the essential files with no optional modules. Existing modules are removed from the group policy.

Examples

In the following example, the user enters group-policy attributes mode for the group policy *PostureModuleGroup*, enters webvpn configuration mode for the group policy, and specifies the string *posture* and *telemetry* so that the AnyConnect Posture Module and AnyConnect Telemetry Module will be downloaded to the endpoint when it connects to the ASA.

```
hostname> en
Password:
hostname# config t
hostname(config)# group-policy PostureModuleGroup attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# anyconnect modules value posture,telemetry
hostname(config-group-webvpn)# write mem
Building configuration...
Cryptochecksum: 40975338 b918425d 083b391f 9e5a5c69

22055 bytes copied in 3.440 secs (7351 bytes/sec)
[OK]
hostname(config-group-webvpn)#
```

To remove a module from a group policy, resend the command specifying only the module values you want to keep. For example, this command removes the telemetry module:

```
hostname(config-group-webvpn)# anyconnect modules value posture
```

Related Commands

Command	Description
show webvpn anyconnect	Displays information about AnyConnect packages that are loaded in cache memory on the ASA and available for download.
anyconnect enable	Enables an AnyConnect client for a specific group or user.
anyconnect image	Specifies an AnyConnect client package file that the ASA expands in cache memory for downloading to remote PCs.

anyconnect mtu

To adjust the MTU size for SSL VPN connections established by the Cisco AnyConnect VPN Client, use the **anyconnect mtu** command in group policy webvpn or username webvpn configuration mode. To remove the command from the configuration, use the **no** form of the command.

anyconnect mtu *size*

no anyconnect mtu *size*

Syntax Description

size	The MTU size in bytes, from 256 to 1406 bytes.

Defaults

The default size is 1406 bytes.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group policy webvpn configuration	•	—	•	—	—
Username webvpn configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.
8.4(1)	The **anyconnect mtu** command replaced the **svc mtu** command.

Usage Guidelines

This command affects only the AnyConnect client. The Cisco SSL VPN Client is not capable of adjusting to different MTU sizes.

The default for this command in the default group policy is **no svc mtu**. The MTU size is adjusted automatically based on the MTU of the interface that the connection uses, minus the IP/UDP/DTLS overhead.

This command affects AnyConnect client connections established in only SSL and those established in SSL with DTLS.

The minimum MTU allowed on an IPv6 enabled interface is 1280 bytes; however, if IPsec is enabled on the interface, the MTU value should not be set below 1380 because of the overhead of IPsec encryption. Setting the interface below 1380 bytes may result in dropped packets.

Examples

The following example configures the MTU size to 500 bytes for the group policy *telecommuters*:

```
hostname(config)# group-policy telecommuters attributes
hostname(config-group-policy)# webvpn
```

```
hostname(config-group-webvpn)# anyconnect mtu 500
```

Related Commands

Command	Description
anyconnect keep-installer	Disables the automatic uninstalling feature of the client. After the initial download, the client remains on the remote PC after the connection terminates.
anyconnect ssl dtls	Enables DTLS for CVCs establishing SSL VPN connections.
show run webvpn	Displays configuration information about WebVPN, including **anyconnect** commands.

anyconnect profiles (group-policy or username attributes)

To specify a CVC profiles package downloaded to Cisco AnyConnect VPN Client (CVC) users, use the **anyconnect profiles** command in group policy webvpn or username attributes webvpn configuration mode. To remove the command from the configuration and cause the value it to be inherited, use the **no** form of the command.

anyconnect profiles {**value** *profile* | **none**}

no anyconnect profiles {**value** *profile* | **none** } **[type** *type*]

Syntax Description

value *profile*	The name of the profile.
none	The ASA does not download profiles.
type *type*	The user who corresponds to the standard AnyConnect profile or any alphanumeric value.

Defaults

The default is none. The ASA does not download profiles.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group policy webvpn configuration	•	—	•	—	—
Username webvpn configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.
8.3(1)	The optional type **value** was introduced.
8.4(1)	The **anyconnect profiles** command replaced the **svc profiles** command.

Usage Guidelines

This command, entered in group policy webvpn or username attributes webvpn configuration mode, enables the ASA to download profiles to CVC users on a group policy or username basis. To download a CVC profile to all CVC users, use this command from webvpn configuration mode.

A CVC profile is a group of configuration parameters that the CVC uses to configure the connection entries that appear in the CVC user interface, including the names and addresses of host computers. You can create and save profiles using the CVC user interface. You can also edit this file with a text editor and set advanced parameters that are not available through the user interface.

The CVC installation contains one profile template (cvcprofile.xml) that you can edit and use as a basis for creating other profile files. For more information about editing CVC profiles, see the *Cisco AnyConnect VPN Client Administrator Guide*.

Examples

In the following example, the user enters the **anyconnect profiles value** command, which displays the available profiles:

```
hostname(config-group-webvpn)# anyconnect profiles value ?

config-group-webvpn mode commands/options:
Available configured profile packages:
  engineering
  sales
```

Then the user configures the group policy to use the CVC profile sales:

```
hostname(config-group-webvpn)# anyconnect profiles sales
```

Related Commands

Command	Description
show webvpn anyconnect	Displays information about installed AnyConnect clients.
anyconnect	Enables or requires an SSL VPN client for a specific group or user.
anyconnect image	Specifies an AnyConnect client package file that the ASA expands in cache memory for downloading to remote PCs.

anyconnect profiles (webvpn)

To specify a file as a profiles package that the ASA loads in cache memory and makes available to group policies and username attributes of Cisco AnyConnect VPN Client (CVC) users, use the **anyconnect profiles** command in webvpn configuration mode. To remove the command from the configuration and cause the ASA to unload the package file from cache memory, use the **no** form of the command.

anyconnect profiles {*profile path*}

no anyconnect profiles {*profile path*}

Syntax Description

path	The path and filename of the profile file in flash memory of the ASA.
profile	The name of the profile to create in cache memory.

Defaults

The default is none. The ASA does not load a profiles package in cache memory.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
webvpn configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.
8.4(1)	The **anyconnect profiles** command replaced the **svc profiles** command.

Usage Guidelines

A CVC profile is a group of configuration parameters that the CVC uses to configure the connection entries that appear in the CVC user interface, including the names and addresses of host computers. You can create and save profiles using the CVC user interface.

You can also edit this file with a text editor and set advanced parameters that are not available through the user interface. The CVC installation contains one profile template (cvcprofile.xml) that you can edit and use as a basis for creating other profile files. For more information about editing CVC profiles, see the *Cisco AnyConnect VPN Client Administrator Guide.*

After you create a new CVC profile and upload it to flash memory, identify the XML file to the ASA as a profile using the **anyconnect profiles** command in webvpn configuration mode. After you enter this command, files are loaded into cache memory on the ASA. Then you can specify the profile for a group or user with the **anyconnect profiles** command from group policy webvpn configuation or username attributes configuration mode.

Examples

In the following example, the user previously created two new profile files (sales_hosts.xml and engineering_hosts.xml) from the cvcprofile.xml file provided in the CVC installation and uploaded them to flash memory on the ASA.

Then the user identifies these files to the ASA as CVC profiles, specifying the names *sales* and *engineering*:

```
hostname(config-webvpn)# anyconnect profiles sales disk0:sales_hosts.xml
hostname(config-webvpn)# anyconnect profiles engineering disk0:engineering_hosts.xml
```

Entering the **dir cache:stc/profiles** command shows the profiles that have been loaded into cache memory:

```
hostname(config-webvpn)# dir cache:stc/profiles

Directory of cache:stc/profiles/

0      ----  774         11:54:41 Nov 22 2006  engineering.pkg
0      ----  774         11:54:29 Nov 22 2006  sales.pkg

2428928 bytes total (18219008 bytes free)
hostname(config-webvpn)#
```

These profiles are available to the **svc profiles** command in group policy webvpn configuration or username attributes configurate modes:

```
hostname(config)# group-policy sales attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# anyconnect profiles value ?

config-group-webvpn mode commands/options:
Available configured profile packages:
  engineering
  sales
```

Related Commands

Command	Description
show webvpn anyconnect	Displays information about installed AnyConnect clients.
anyconnect	Enables or requires the SSL VPN client for a specific group or user.
anyconnect image	Specifies an AnyConnect package file that the ASA expands in cache memory for downloading to remote PCs.

anyconnect routing-filtering-ignore

To notify the AnyConnect client that it should ignore routing and filtering rules, use the **anyconnect routing-filtering-ignore** command in group policy webvpn configuration mode. To turn off the notification of ignoring routing and filtering rules, use the **no** form of the command.

anyconnect routing-filtering-ignore {enable | none}

no anyconnect routing-filtering-ignore {enable | none}

Syntax Description

enable	Enables routing and filtering rules for AnyConnect client.
none	Disables routing and filtering rules for AnyConnect client.

Defaults

By default, this option is not enabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Group policy webvpn configuration	•	—	•	—	—

Command History

Release	Modification
8.2(3)	This command was introduced.
8.4(1)	The **anyconnect routing-filtering-ignore** command replaced the **svc routing-filtering-ignore** command.

Examples

```
vmb-5520(config-group-webvpn)# anyconnect routing-filtering-ignore ?

config-group-webvpn mode commands/options:
  enable  Enable Routing/Filtering for AnyConnect Client
  none    Disable Routing/Filtering for AnyConnect Client
```

anyconnect ssl compression

To enable compression of http data over an SSL VPN connection for a specific group or user, use the **anyconnect ssl compression** command in group policy webvpn or username webvpn configuration mode. To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command.

anyconnect ssl compression {**deflate | lzs | none**}

no anyconnect ssl compression {**deflate | lzs | none**}

Syntax Description

deflate	Enables a deflate compression algorithm.
lzs	Enables a stateless compression algorithm.
none	Disables compression.

Defaults

By default, compression is set to none (disabled).

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Group policy webvpn configuration	•	—	•	—	—
Username webvpn configuration	•	—	•	—	—

Command History

Release	Modification
8.4(2)	The **anyconnect compression** command was introduced.

Usage Guidelines

For SSL VPN connections, the **compression** command configured from webvpn configuration mode overrides the **anyconnect ssl compression** command configured in group policy and username webvpn mode.

Examples

In the following example, SVC compression is disabled for the group policy sales:

```
hostname(config)# group-policy sales attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# anyconnect ssl compression none
```

Related Commands

Command	Description
anyconnect	Enables or requires the SSL VPN client for a specific group or user.
anyconnect keepalive	Specifies the frequency at which a client on a remote computer sends keepalive messages to the ASA over an SSL VPN connection.
anyconnect keep-installer	Disables the automatic uninstalling feature of the client. The client remains installed on the remote PC for future connections.
anyconnect rekey	Enables the client to perform a rekey on an SSL VPN connection.
compression	Enables compression for all SSL, WebVPN, and IPsec VPN connections.
show webvpn anyconnect	Displays information about installed SSL VPN clients.

anyconnect ssl df-bit-ignore

To enable the forced fragmentation of packets on an SSL VPN connection (allowing them to pass through the tunnel) for a specific group or user, use the **anyconnect ssl df-bit-ignore** command in the group policy webvpn or username webvpn configuration mode. To remove the command from the configuration and cause the value to be inherited, use the **no** form of this command.

anyconnect ssl df-bit-ignore {enable | disable}

no anyconnect ssl df-bit-ignore

Syntax Description

enable	Enable DF-bit ignore for AnyConnect with SSL.
disable	Disable DF-bit for AnyConnect with SSL.

Defaults

DF bit ignore is set to *disabled.*

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Group policy webvpn configuration	•	—	•	—	—
Username webvpn configuration	•	—	•	—	—

Command History

Release	Modification
8.4(1)	The **anyconnect ssl df-bit-ignore** form of the command replaced **svc df-bit-ignore**.

Usage Guidelines

This feature allows the force fragmentation of packets that have the DF bit set, allowing them to pass through the tunnel. An example use case is for servers in your network that do not respond correctly to TCP MSS negotiations.

Examples

In the following example, DF bit ignore is enabled for the group policy sales:

```
hostname(config)# group-policy sales attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# anyconnect ssl df-bit-ignore enable
```

Related Commands

Command	Description
anyconnect	Enables or requires the SSL VPN client for a specific group or user.

anyconnect keepalive	Specifies the frequency at which a client on a remote computer sends keepalive messages to the ASA over an SSL VPN connection.
anyconnect keep-installer	Disables the automatic uninstalling feature of the client. The client remains installed on the remote PC for future connections.
anyconnect rekey	Enables the client to perform a rekey on an SSL VPN connection.

anyconnect ssl dtls enable

To enable Datagram Transport Layer Security (DTLS) connections on an interface for specific groups or users establishing SSL VPN connections with the Cisco AnyConnect VPN Client, use the **anyconnect ssl dtls enable** command in group policy webvpn or username attributes webvpn configuration mode. To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command.

anyconnect ssl dtls enable *interface*

no anyconnect ssl dtls enable *interface*

Syntax Description

interface	The name of the interface.

Defaults

The default is enabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group policy webvpn configuration	•	—	•	—	—
Username webvpn configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.
8.4(1)	The **anyconnect ssl dtls** command replaced the **svc dtls** command.

Usage Guidelines

Enabling DTLS allows the AnyConnect client establishing an SSL VPN connection to use two simultaneous tunnels—an SSL tunnel and a DTLS tunnel. Using DTLS avoids latency and bandwidth problems associated with some SSL connections and improves the performance of real-time applications that are sensitive to packet delays.

If you do not enable DTLS, AnyConnect client users establishing SSL VPN connections connect with an SSL tunnel only.

This command enables DTLS for specific groups or users. To enable DTLS for all AnyConnect client users, use the **anyconnect ssl dtls enable** command in webvpn configuration mode.

Examples

The following example enters group policy webvpn configuration mode for the group policy *sales* and enables DTLS:

```
hostname(config)# group-policy sales attributes
```

```
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# anyconnect ssl dtls enable
```

Related Commands

Command	Description
dtls port	Specifies a UDP port for DTLS.
anyconnect dtls	Enables DTLS for groups or users establishing SSL VPN connections.
vpn-tunnel-protocol	Specifies VPN protocols that the ASA allows for remote access, including SSL.

anyconnect ssl keepalive

To configure the frequency of keepalive messages which a remote client sends to the ASA over SSL VPN connections, use the **anyconnect ssl keepalive** command in group policy webvpn or username webvpn configuration modes. Use the **no** form of the command to remove the command from the configuration and cause the value to be inherited.

anyconnect ssl keepalive {**none** | *seconds*}

no anyconnect ssl keepalive {**none** | *seconds*}

Syntax Description

none	Disables keepalive messages.
seconds	Enables keepalive messages and specifies the frequency of the messages, from 15 to 600 seconds.

Defaults

The default is 20 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Group policy webvpn configuration	•	—	•	—	—
Username webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.
8.0(3)	The default setting changed from disabled to 20 seconds.
8.4(1)	The **anyconnect ssl keepalive** command replaced the **svc keepalive** command.

Usage Guidelines

Both the Cisco SSL VPN Client (SVC) and the Cisco AnyConnect VPN Client can send keepalive messages when they establish SSL VPN connections to the ASA.

You can adjust the frequency of keepalive messages (specified in *seconds*) to ensure that an SSL VPN connection through a proxy, firewall, or NAT device remains open, even if the device limits the time that the connection can be idle.

Adjusting the frequency also ensures that the client does not disconnect and reconnect when the remote user is not actively running a socket-based application, such as Microsoft Outlook or Microsoft Internet Explorer.

Note Keepalives are enabled by default. If you disable keepalives, in the event of a failover event, SSL VPN client sessions are not carried over to the standby device.

Examples

In the following example, the user configures the ASA to enable the client to send keepalive messages, with a frequency of 300 seconds (5 minutes), for the existing group policy named *sales*:

```
hostname(config)# group-policy sales attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# anyconnect ssl keepalive 300
```

Related Commands

Command	Description
anyconnect	Enables or requires an SSL VPN client for a specific group or user.
anyconnect dpd-interval	Enables Dead Peer Detection (DPD) on the ASA, and sets the frequency in which either the client or the ASA performs DPD.
anyconnect keep-installer	Disables the automatic uninstalling feature of the client. The client remains installed on the remote PC for future connections.
anyconnect ssl rekey	Enables the client to perform a rekey on a session.

anyconnect ssl rekey

To enable a remote client to perform a rekey on an SSL VPN connection, use the **anyconnect ssl rekey** command in group-policy webvpn or username webvpn configuration mode. To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command.

anyconnect ssl rekey {**method** {**ssl** | **new-tunnel**} | **time** *minutes* | **none**}

no anyconnect ssl rekey {**method** {**ssl** | **new-tunnel**} | **time** *minutes* | **none**}

Syntax Description

method ssl	Specifies that the client establishes a new tunnel during rekey.
method new-tunnel	Specifies that the client establishes a new tunnel during rekey.
method none	Disables rekey.
time *minutes*	Specifies the number of minutes from the start of the session until the rekey takes place, from 4 to 10080 (1 week).

Defaults

The default is none (disabled).

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group policy webvpn configuration	•	—	•	—	—
Username webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced as **svc rekey**.
8.0(2)	The behavior of the **svc rekey method ssl** command changed to that of the **svc rekey method new-tunnel** command to prevent the possibility of a “man in the middle” attack.
8.4(1)	The **anyconnect ssl rekey** command replaced the **svc rekey** command.

Usage Guidelines

The Cisco AnyConnect Secure Mobility Client can perform a rekey on an SSL VPN connection to the ASA. Configuring the rekey method as **ssl** or **new-tunnel** specifies that the client establishes a new tunnel during rekey instead of the SSL renegotiation taking place during the rekey.

Examples

In the following example, the user specifies that remote clients belonging to the group policy *sales* renegotiate with SSL during rekey and rekey occurs 30 minutes after the session begins:

```
hostname(config)# group-policy sales attributes
```

```
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# anycoanynnect ssl rekey method ssl
hostname(config-group-webvpn)# anyconnect ssl rekey time 30
```

Related Commands

Command	Description
anyconnect enable	Enables or requires the AnyConnect Secure Mobility Client for a specific group or user.
anyconnect dpd-interval	Enables Dead Peer Detection (DPD) on the ASA, and sets the frequency that either the AnyConnect Secure Mobility Client or the ASA performs DPD.
anyconnect keepalive	Specifies the frequency at which an AnyConnect Secure Mobility Client on a remote computer sends keepalive messages to the ASA.
anyconnect keep-installer	Enables the permanent installation of an AnyConnect Secure Mobility Client onto a remote computer.

anyconnect-essentials

To enable AnyConnect Essentials on the ASA, use the **anyconnect-essentials** command in group policy webvpn configuration mode. To disable the use of AnyConnect Essentials and enable the premium AnyConnect client instead, use the **no** form of the command.

anyconnect-essentials

no anyconnect-essentials

Defaults

AnyConnect Essentials is enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

Use this command to toggle between using the full AnyConnect SSL VPN client and the AnyConnect Essentials SSL VPN client, assuming that the full AnyConnect client license is installed. AnyConnect Essentials is a separately licensed SSL VPN client, entirely configured on the ASA, that provides the premium AnyConnect capability, with the following exceptions:

- No CSD (including HostScan/Vault/Cache Cleaner)
- No clientless SSL VPN

The AnyConnect Essentials client provides remote end users running Microsoft Windows Vista, Windows Mobile, Windows XP or Windows 2000, Linux, or Macintosh OS X, with the benefits of a Cisco SSL VPN client.

You enable or disable the AnyConnect Essentials license by using the **anyconnect-essentials** command, which is meaningful only after you have installed the AnyConnect Essentials license on the ASA. Without this license, this command returns the following error message:

```
ERROR: Command requires AnyConnect Essentials license
```

Note This command only enables or disables the use of AnyConnect Essentials. The AnyConnect Essentials *license* itself is not affected by the setting of the **anyconnect-essentials** command.

When the AnyConnect Essentials license is enabled, AnyConnect clients use Essentials mode, and Clientless SSL VPN access is disabled. When the AnyConnect Essentials license is disabled, AnyConnect clients use the full AnyConnect SSL VPN Client license.

If you have active clientless SSL VPN connections, and you enable the AnyConnect Essentials license, then all connections are logged off and will need to be reestablished.

Examples

In the following example, the user enters webvpn configuration mode and enables the AnyConnect Essentials VPN client:

```
hostname(config)# webvpn
hostname(config-webvpn)# anyconnect-essentials
```

apcf

To enable an Application Profile Customization Framework profile, use the **apcf** command in webvpn configuration mode. To disable a particular APCF script, use the **no** form of the command. To disable all APCF scripts, use the **no** form of the command without arguments.

apcf URL/filename.ext

no apcf [URL/filename.ext]

Syntax Description

filename.extension	Specifies the name of the APCF customization script. These scripts are always in XML format. The extension might be .xml, .txt, .doc or one of many others
URL	Specifies the location of the APCF profile to load and use on the ASA. Use one of the following URLs: http://, https://, tftp://, ftp://; flash:/, disk#:/' The URL might include a server, port, and path. If you provide only the filename, the default URL is flash:/. You can use the **copy** command to copy an APCF profile to flash memory.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

The **apcf** command enables the ASA to handle non-standard web applications and web resources so that they render correctly over a WebVPN connection. An APCF profile contains a script that specifies when (pre, post), where (header, body, request, response), and which data to transform for a particular application.

You can use multiple APCF profiles on the ASA. When you do, the ASA applies each one of them in the order of oldest to newest.

We recommend that you use the APCF command only with the support of the Cisco TAC.

Examples

The following example shows how to enable an APCF named apcf1, located on flash memory at /apcf:

```
hostname(config)# webvpn
```

```
hostname(config-webvpn)# apcf flash:/apcf/apcf1.xml
hostname(config-webvpn)#
```

This example shows how to enable an APCF named apcf2.xml, located on an HTTPS server called myserver, port 1440 with the path /apcf:

```
hostname(config)# webvpn
hostname(config-webvpn)# apcf https://myserver:1440/apcf/apcf2.xml
hostname(config-webvpn)#
```

Related Commands

Command	Description
proxy-bypass	Configures minimal content rewriting for a particular application.
rewrite	Determines whether traffic travels through the ASA.
show running config webvpn apcf	Displays the APCF configuration.

appl-acl

To identify a previously configured webtype ACL to apply to a session, use the **appl-acl** command in dap webvpn configuration mode. To remove the attribute from the configuration, use the **no** form of the command. To remove all web-type ACLs, use the **no** form of the command without arguments.

appl-acl [*identifier***]**

no appl-acl [*identifier***]**

Syntax Description

identifier	The name of the previously configured webtype ACL. The maximum length is 240 characters.

Defaults

No default value or behaviors.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Dap webvpn configuration	•	•	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

To configure webtype ACLs, use the **access-list webtype** command in global configuration mode.

Use the **appl-acl** command multiple times to apply more than one webtype ACL to the DAP policy.

Examples

The following example shows how to apply the previously configured webtype ACL called newacl to the dynamic access policy:

```
hostname (config)# config-dynamic-access-policy-record Finance
hostname(config-dynamic-access-policy-record)# webvpn
hostname(config-dynamic-access-policy-record)# appl-acl newacl
```

Related Commands

Command	Description
dynamic-access-policy-record	Creates a DAP record.
access-list_webtype	Creates a web-type ACL.

application-access

To customize the Application Access fiels of the WebVPN Home page that is displayed to authenticated WebVPN users, and the Application Access window that is launched when the user selects an application, use the **application-access** command in customization configuration mode. To remove the command from the configuration and cause the value to be inherited, use the **no** form of this command.

application-access {**title** | **message** | **window**} {**text** | **style**} *value*

no application-access {**title** | **message** | **window**} {**text** | **style**} *value*

Syntax Description

message	Changes the message displayed under the title of the Application Access field.
style	Changes the style of the Application Access field.
text	Changes the text of the Application Access field.
title	Changes the title of the Application Access field.
value	The actual text to display (a maximum of 256 characters), or Cascading Style Sheet (CSS) parameters (a maximum of 256 characters).
window	Changes the Application Access window.

Defaults

The default title text of the Application Access field is “Application Access”.

The default title style of the Application Access field is:

background-color:#99CCCC;color:black;font-weight:bold;text-transform:uppercase

The default message text of the Application Access field is “Start Application Client”.

The default message style of the Application Access field is:

background-color:#99CCCC;color:maroon;font-size:smaller.

The default window text of the Application Access window is:

“Close this window when you finish using Application Access. Please wait for the table to be displayed before starting applications.”.

The default window style of the Application Access window is:

background-color:#99CCCC;color:black;font-weight:bold.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Customization configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

This command is accessed by using the **webvpn** command or the **tunnel-group webvpn-attributes** command.

The **style** option is expressed as any valid Cascading Style Sheet (CSS) parameter. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium (W3C) website at www.w3.org. Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at www.w3.org/TR/CSS21/propidx.html.

The following tips can help you make the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.
- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma separated entry indicates the level of intensity of each color to combine with the others.
- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.

Note To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

Examples

The following example customizes the background color of the Application Access field to the RGB hexadecimal value 66FFFF, a shade of green:

```
F1-asa1(config)# webvpn
F1-asa1(config-webvpn)# customization cisco
F1-asa1(config-webvpn-custom)# application-access title style background-color:#66FFFF
```

Related Commands

Command	Description
application-access hide-details	Enables or disables the display of the application details in the Application Access window.
browse-networks	Customizes the Browse Networks field of the WebVPN Home page.
file-bookmarks	Customizes the File Bookmarks title or links on the WebVPN Home page.
web-applications	Customizes the Web Application field of the WebVPN Home page.
web-bookmarks	Customizes the Web Bookmarks title or links on the WebVPN Home page.

application-access hide-details

To hide application details that are displayed in the WebVPN Applications Access window, use the **application-access hide-details** command in customization configuration mode, which is accessed by using the **webvpn** command or the **tunnel-group webvpn-attributes** command. To remove the command from the configuration and cause the value to be inherited, use the **no** form of this command.

application-access hide-details {**enable | disable**}

no application-access [**hide-details** {**enable | disable**}]

Syntax Description

disable	Does not hide application details in the Application Access window.
enable	Hides application details in the Application Access window.

Defaults

The default is disabled. Application details appear in the Application Access window.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Customization configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Examples

The following example disables the appearance of the application details:

```
hostname(config)# webvpn
hostname(config-webvpn)# customization cisco
hostname(config-webvpn-custom)# application-access hide-details disable
```

Related Commands

Command	Description
application-access	Customizes the Application Access field of the WebVPN Home page.
browse-networks	Customizes the Browse Networks field of the WebVPN Home page.
web-applications	Customizes the Web Application field of the WebVPN Home page.

CHAPTER 3

area through auto-update timeout Commands

area

To create an OSPF v2 or OSPFv3 area, use the **area** command in router configuration mode. To remove the area, use the **no** form of this command.

area *area_id*

no area *area_id*

Syntax Description

area_id	The ID of the area being created. You can specify the identifier as either a decimal number or an IP address. Valid decimal values range from 0 to 4294967295.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	—	—
IPv6 router configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	We introduced this command.
9.0(1)	Support for OSPFv3 was added.

Usage Guidelines

The area that you create does not have any parameters set. Use the related **area** commands to set the area parameters.

Examples

The following example shows how to create an OSPF area with an area ID of 1:

```
hostname(config-router)# area 1
hostname(config-router)#
```

Related Commands

Command	Description
area nssa	Defines the area as a not-so-stubby area.
area stub	Defines the area as a stub area.

Command	Description
router ospf	Enters router configuration mode.
show running-config router	Displays the commands in the global router configuration.

area authentication

To enable authentication for an OSPFv2 area, use the **area authentication** command in router configuration mode. To disable area authentication, use the **no** form of this command.

area *area_id* **authentication** [**message-digest**]

no area *area_id* **authentication** [**message-digest**]

Syntax Description

area_id	The identifier of the area for which authentication is to be enabled. You can specify the identifier as either a decimal number or an IP address. Valid decimal values range from 0 to 4294967295.
message-digest	(Optional) Enables Message Digest 5 (MD5) authentication for the area specified by the *area_id*.

Defaults

Area authentication is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	We introduced this command.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

If the specified OSPFv2 area does not exist, it is created when this command is entered. Entering the **area authentication** command without the **message-digest** keyword enables simple password authentication. Including the **message-digest** keyword enables MD5 authentication.

Examples

The following example shows how to enable MD5 authentication for area 1:

```
hostname(config-router)# area 1 authentication message-digest
hostname(config-router)#
```

Related Commands

Command	Description
router ospf	Enters router configuration mode.
show running-config router	Displays the commands in the global router configuration.

area default-cost

To specify a cost for the default summary route sent into a stub or NSSA, use the **area default-cost** command in router configuration mode or IPv6 router configuration mode. To restore the default cost value, use the **no** form of this command.

area *area_id* **default-cost** *cost*

no area *area_id* **default-cost** *cost*

Syntax Description

area_id	The identifier of the stub or NSSA whose default cost is being changed. You can specify the identifier as either a decimal number or an IP address. Valid decimal values range from 0 to 4294967295.
cost	Specifies the cost for the default summary route that is used for a stub or NSSA. Valid values range from 0 to 65535

Defaults

The default value of *cost* is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	•	—
IPv6 router configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	We introduced this command.
9.0(1)	Multiple context mode and OSPFv3 are supported.

Usage Guidelines

If the specified area has not been previously defined using the **area** command, this command creates the area with the specified parameters.

Examples

The following example show how to specify a default cost for summary route sent into a stub or NSSA:

```
hostname(config-router)# area 1 default-cost 5
hostname(config-router)#
```

Related Commands

Command	Description
area nssa	Defines the area as a not-so-stubby area.
area stub	Defines the area as a stub area.
router ospf	Enters router configuration mode.
show running-config router	Displays the commands in the global router configuration.

area filter-list prefix

To filter prefixes advertised in Type 3 LSAs between OSPFv2 areas of an ABR, use the **area filter-list prefix** command in router configuration mode. To change or cancel the filter, use the **no** form of this command.

area *area_id* **filter-list prefix** *list_name* {**in** | **out**}

no area *area_id* **filter-list prefix** *list_name* {**in** | **out**}

Syntax Description

area_id	Identifies the area for which filtering is configured. You can specify the identifier as either a decimal number or an IP address. Valid decimal values range from 0 to 4294967295.
in	Applies the configured prefix list to prefixes advertised inbound to the specified area.
list_name	Specifies the name of a prefix list.
out	Applies the configured prefix list to prefixes advertised outbound from the specified area.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	We introduced this command.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

If the specified area has not been previously defined using the **area** command, this command creates the area with the specified parameters.

Only Type 3 LSAs can be filtered. If an ASBR has been configured in the private network, then it sends Type 5 LSAs (describing private networks) that are flooded to the entire AS including the public areas.

Examples

The following example filters prefixes that are sent from all other areas to area 1:

```
hostname(config-router)# area 1 filter-list prefix-list AREA_1 in
hostname(config-router)#
```

Related Commands

Command	Description
router ospf	Enters router configuration mode.
show running-config router	Displays the commands in the global router configuration.

area nssa

To configure an area as an NSSA, use the **area nssa** command in router configuration mode or IPv6 router configuration mode. To remove the NSSA designation from the area, use the **no** form of this command.

area *area_id* **nssa** [**no-redistribution**] [**default-information-originate** [**metric-type** {**1** | **2**}] [**metric** *value*]] [**no-summary**]

no area *area_id* **nssa** [**no-redistribution**] [**default-information-originate** [**metric-type** {**1** | **2**}] [**metric** *value*]] [**no-summary**]

Syntax Description

area_id	Identifies the area being designated as an NSSA. You can specify the identifier as either a decimal number or an IP address. Valid decimal values range from 0 to 4294967295.
default-information-originate	Used to generate a Type 7 default into the NSSA area. This keyword only takes effect on an NSSA ABR or an NSSA ASBR.
metric *metric_value*	(Optional) Specifies the OSPF default metric value. Valid values range from 0 to 16777214.
metric-type {**1** | **2**}	(Optional) the OSPF metric type for default routes. Valid values are the following: • **1**—type 1 • **2**—type 2. The default value is 2.
no-redistribution	(Optional) Used when the router is an NSSA ABR and you want the **redistribute** command to import routes only into the normal areas, but not into the NSSA area.
no-summary	(Optional) Allows an area to be a not-so-stubby area but not have summary routes injected into it.

Defaults

The defaults are as follows:

- No NSSA area is defined.
- The **metric-type** is 2.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	•	—
IPv6 router configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	We introduced this command.
9.0(1)	Multiple content mode and OSPFv3 are supported.

Usage Guidelines

If the specified area has not been previously defined using the **area** command, this command creates the area with the specified parameters.

If you configure one option for an area, and later specify another option, both options are set. For example, entering the following two command separately results in a single command with both options set in the configuration:

```
hostname(config-rtr)# area 1 nssa no-redistribution
hostname(config-rtr)# area area_id nssa default-information-originate
```

Examples

The following example shows how setting two options separately results in a single command in the configuration:

```
hostname(config-rtr)# area 1 nssa no-redistribution
hostname(config-rtr)# area 1 nssa default-information-originate
hostname(config-rtr)# exit
hostname(config-rtr)# show running-config router ospf 1
router ospf 1
 area 1 nssa no-redistribution default-information-originate
```

Related Commands

Command	Description
area stub	Defines the area as a stub area.
router ospf	Enters router configuration mode.
show running-config router	Displays the commands in the global router configuration.

area range (OSPFv2)

To consolidate and summarize routes at an area boundary, use the **area range** command in router configuration mode. To disable this function, use the **no** form of this command.

area *area_id* **range** *address mask* [**advertise | not-advertise**]

no area *area_id* **range** *address mask* [**advertise | not-advertise**]

Syntax Description

address	IP address of the subnet range.
advertise	(Optional) Sets the address range status to advertise and generates Type 3 summary link-state advertisements (LSAs).
area_id	Identifies the area for which the range is configured. You can specify the identifier as either a decimal number or an IP address. Valid decimal values range from 0 to 4294967295.
mask	IP address subnet mask.
not-advertise	(Optional) Sets the address range status to DoNotAdvertise. The Type 3 summary LSA is suppressed, and the component networks remain hidden from other networks.

Defaults

The address range status is set to advertise.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	We introduced this command.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

If the specified area has not been previously defined using the **area** command, this command creates the area with the specified parameters.

The **area range** command is used only with ABRs to consolidate or summarize routes for an area. The result is that a single summary route is advertised to other areas by the ABR. Routing information is condensed at area boundaries. External to the area, a single route is advertised for each address range. This behavior is called *route summarization*. You can configure multiple **area range** commands for an area. In this way, OSPF can summarize addresses for many different sets of address ranges.

The **no area** *area_id* **range** *ip_address netmask* **not-advertise** command removes only the **not-advertise** optional keyword.

Examples

The following example specifies one summary route to be advertised by the ABR to other areas for all subnets on network 10.0.0.0 and for all hosts on network 192.168.110.0:

```
hostname(config-router)# area 10.0.0.0 range 10.0.0.0 255.0.0.0
hostname(config-router)# area 0 range 192.168.110.0 255.255.255.0
hostname(config-router)#
```

Related Commands

Command	Description
router ospf	Enters router configuration mode.
show running-config router	Displays the commands in the global router configuration.

area range (OSPFv3)

To consolidate and summarize OSPFv3 routes at an area boundary, use the **area range** command in IPv6 router configuration mode. To disable this function, use the **no** form of this command.

area *area_id* **range** *ipv6-prefix/prefix-length* [**advertise | not-advertise**] [**cost** *cost*]

no area *area_id* **range** *ipv6-prefix/prefix-length* [**advertise | not-advertise**] [**cost** *cost*]

Syntax Description

advertise	(Optional) Sets the range status to advertise and generates Type 3 summary link-state advertisements (LSAs).
area_id	Specifies the identifier of the area for which routes are to be summarized. You can specify the identifier as either a decimal number or an IPv6 prefix.
cost *cost*	(Optional) Specifies the metric or cost for this summary route, which is used during OSPF SPF calculations to detemine the shortest paths to the destination. Valid values range from 0 to 16777215.
ipv6-prefix	Specifies the IPv6 prefix.
not-advertise	(Optional) Sets the range status to DoNotAdvertise. The Type 3 summary LSA is suppressed, and the component networks remain hidden from other networks.
prefix-length	Specifies the IPv6 prefix length.

Defaults

The range status is set to advertise by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
IPv6 router configuration	•	—	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

If the specified area has not been previously defined using the **area** command, this command creates the area with the specified parameters.

The **area range** command is used only with ABRs. It is used to consolidate or summarize routes for an area. The result is that a single summary route is advertised to other areas by the ABR. Routing information is condensed at area boundaries. External to the area, a single route is advertised for each

IPv6 prefix and prefix length. This behavior is called *route summarization*. You can configure multiple **area range** commands for an area. In this way, OSPFv3 can summarize routes for many different sets of IPv6 prefixes and prefix lengths.

Examples

The following example specifies one summary route to be advertised by the ABR to other areas for IPv6 prefix 2000:0:0:4::2 with the prefix-length 2001::/64:

```
hostname(config-router)# area 1 range 2000:0:0:4::2/2001::/64
hostname(config-router)#
```

Related Commands

Command	Description
ipv6 router ospf	Enters IPv6 router configuration mode for OSPFv3.
show running-config ipv6 router	Displays the IPv6 commands in the global router configuration.

area stub

To define an area as a stub area, use the **area stub** command in router configuration mode or IPv6 router configuration mode. To remove the stub area, use the **no** form of this command.

area *area_id* **stub** [**no-summary**]

no area *area_id* **stub** [**no-summary**]

Syntax Description

area_id	Identifies the stub area. You can specify the identifier as either a decimal number or an IP address. Valid decimal values range from 0 to 4294967295.
no-summary	Prevents an ABR from sending summary link advertisements into the stub area.

Defaults

The default behaviors are as follows:

- No stub areas are defined.
- Summary link advertisements are sent into the stub area.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	—	—
IPv6 router configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	We introduced this command.
9.0(1)	Support for OSPFv3 was added.

Usage Guidelines

The command is used only on an ABR attached to a stub or NSSA.

There are two stub area router configuration commands: the **area stub** and **area default-cost** commands. In all routers and access servers attached to the stub area, the area should be configured as a stub area using the **area stub** command. Use the **area default-cost** command only on an ABR attached to the stub area. The **area default-cost** command provides the metric for the summary default route generated by the ABR into the stub area.

Examples

The following example configures the specified area as a stub area:

```
hostname(config-rtr)# area 1 stub
```

```
hostname(config-rtr)#
```

Related Commands

Command	Description
area default-cost	Specifies a cost for the default summary route sent into a stub or NSSA.
area nssa	Defines the area as a not-so-stubby area.
router ospf	Enters router configuration mode.
show running-config router	Displays the commands in the global router configuration.

area virtual-link (OSPFv2)

To define an OSPF virtual link, use the **area virtual-link** command in router configuration mode. To reset the options or remove the virtual link, use the **no** form of this command.

area *area_id* **virtual-link** *router_id* [**authentication** [**message-digest | null**]] [**hello-interval** *seconds*] [**retransmit-interval** seconds] [**transmit-delay** *seconds*] [**dead-interval** *seconds* [[[[**authentication-key[0 | 8]** *key*] | [**message-digest-key** *key_id* **md5 [0 | 8]** *key*]]]]

no area *area_id* **virtual-link** *router_id* [**authentication** [**message-digest | null**]] [**hello-interval** *seconds*] [**retransmit-interval** seconds] [**transmit-delay** *seconds*] [**dead-interval** *seconds* [[[[**authentication-key [0 | 8]** *key*] | [**message-digest-key** *key_id* **md5 [0 | 8]** *key*]]]]

Syntax Description

area_id	Area ID of the transit area for the virtual link. You can specify the identifier as either a decimal number or an IP address. Valid decimal values range from 0 to 4294967295.
authentication	(Optional) Specifies the authentication type.
authentication-key [0 | 8]*key*	(Optional) Specifies an OSPF authentication password for use by neighboring routing devices.
dead-interval *seconds*	(Optional) Specifies the interval before declaring a neighboring routing device is down if no hello packets are received; valid values are from 1 to 65535 seconds.
hello-interval *seconds*	(Optional) Specifies the interval between hello packets sent on the interface; valid values are from 1 to 65535 seconds.
md5 [0 | 8] *key*	(Optional) Specifies an alphanumeric key up to 16 bytes.
message-digest	(Optional) Specifies that message digest authentication is used.
message-digest-key *key_id*	(Optional) Enables the Message Digest 5 (MD5) authentication and specifies the numerical authentication key ID number; valid values are from 1 to 255.
0	Specifies an unencrypted password will follow.
8	Specifies an encrypted password will follow.
null	(Optional) Specifies that no authentication is used. Overrides password or message digest authentication if configured for the OSPF area.
retransmit-interval *seconds*	(Optional) Specifies the time between LSA retransmissions for adjacent routers belonging to the interface; valid values are from 1 to 65535 seconds.
router_id	The router ID associated with the virtual link neighbor. The router ID is internally derived by each router from the interface IP addresses. This value must be entered in the format of an IP address. There is no default.
transmit-delay *seconds*	(Optional) Specifies the delay time between when OSPF receives a topology change and when it starts a shortest path first (SPF) calculation in seconds from 0 to 65535. The default is 5 seconds.

Note Single-digit passwords and passwords starting with a digit followed by a whitespace are no longer supported.

Defaults

The defaults are as follows:

- *area_id*: No area ID is predefined.
- *router_id*: No router ID is predefined.
- **hello-interval** *seconds*: 10 seconds.
- **retransmit-interval** *seconds*: 5 seconds.
- **transmit-delay** *seconds*: 1 second.
- **dead-interval** *seconds*: 40 seconds.
- **authentication-key [0 | 8]** *key*: No key is predefined.
- **message-digest-key** *key_id* **md5 [0 | 8]** *key*: No key is predefined.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	We introduced this command.

Usage Guidelines

In OSPF, all areas must be connected to a backbone area. If the connection to the backbone is lost, it can be repaired by establishing a virtual link.

The smaller the hello interval, the faster topological changes are detected, but more routing traffic ensues.

The setting of the retransmit interval should be conservative, or needless retransmissions occur. The value should be larger for serial lines and virtual links.

The transmit delay value should take into account the transmission and propagation delays for the interface.

The specified authentication key is used only when authentication is enabled for the backbone with the **area** *area_id* **authentication** command.

The two authentication schemes, simple text and MD5 authentication, are mutually exclusive. You can specify one or the other or neither. Any keywords and arguments you specify after **authentication-key [0 | 8]** *key* or **message-digest-key** *key_id* **md5[0 | 8]** *key* are ignored. Therefore, specify any optional arguments before such a keyword-argument combination.

If the authentication type is not specified for an interface, the interface uses the authentication type specified for the area. If no authentication type has been specified for the area, the area default is null authentication.

Note Each virtual link neighbor must include the transit area ID and the corresponding virtual link neighbor router ID for a virtual link to be properly configured. Use the **show ospf** command to see the router ID.

Examples

The following example establishes a virtual link with MD5 authentication:

```
hostname(config-rtr)# area 10.0.0.0 virtual-link 10.3.4.5 message-digest-key 3 md5 8
sa5721bk47
```

Related Commands

Command	Description
router ospf	Enters router configuration mode.
show ospf	Displays general information about the OSPF routing processes.
show running-config router	Displays the commands in the global router configuration.

area virtual-link (OSPFv3)

To define an OSPFv3 virtual link, use the **area virtual-link** command in IPv6 router configuration mode. To reset the options or remove the virtual link, use the **no** form of this command.

area *area_id* **virtual-link** *router_id* [**hello-interval** *seconds*] [**retransmit-interval** *seconds*] [**transmit-delay** *seconds*] [**dead-interval** *seconds* [**ttl-security hops** *hop-count*]

no area *area_id* **virtual-link** *router_id* [**hello-interval** *seconds*] [**retransmit-interval** *seconds*] [**transmit-delay** *seconds*] [**dead-interval** *seconds*] [**ttl-security hops** *hop-count*]

Syntax Description

area_id	Specifies the area ID of the transit area for the virtual link. You can specify the identifier as either a decimal number or valid IPv6 prefix. Valid decimal values range from 0 to 4294967295.
dead-interval *seconds*	(Optional) Specifies the time in seconds that hello packets are not seen before a neighbor indicates that the router is down. The dead interval in an unsigned integer value. As with the hello interval, this value must be the same for all routers and access servers that are attached to a common network. Valid values range from 1 to 8192 seconds.
hello-interval *seconds*	(Optional) Specifies the time in seconds between hello packets that the ASA sends on the interface. The hello interval is an unsigned integer value to be advertised in the hello packets. The value must be the same for all routers and access servers that are attached to a common network. Valid values range from 1 to 8192 seconds.
retransmit-interval *seconds*	(Optional) Specifies the time in seconds between LSA retransmissions for adjacent routers that belong to the interface. The retransmission interval is the expected round-trip delay between any two routers on the attached network. The value must be greater than the expected round-trip delay. Valid values range from 1 to 8192 seconds.
router_id	Specifies the router ID that is associated with the virtual link neighbor. The router ID appears in the **show ipv6 ospf** or **show ipv6 display** command.
transmit-delay *seconds*	(Optional) Specifies the estimated time in seconds that is required to send a link-state update packet on the interface. The integer value must be greater than zero. LSAs in the update packet have their age incremented by this amount before transmission. Valid values range from 1 to 8192 seconds.
ttl-security hops *hop-count*	(Optional) Configures the time-to-live (TTL) security on a virtual link. Valid values for the hop count range from 1 to 254.

Note Single-digit passwords and passwords starting with a digit followed by a white space are no longer supported.

Defaults

The defaults are as follows:

- *area_id*: No area ID is predefined.
- *router_id*: No router ID is predefined.

- **hello-interval**: 10 seconds.
- **retransmit-interval**: 5 seconds.
- **transmit-delay**: 1 second.
- **dead-interval**: 40 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
IPv6 router configuration	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

In OSPFv3, all areas must be connected to a backbone area. If the connection to the backbone is lost, it can be repaired by establishing a virtual link.

The smaller the hello interval, the faster topological changes are detected, but more routing traffic occurs.

The setting of the retransmission interval should be conservative, or unnecessary retransmissions occur. The value should be larger for serial lines and virtual links.

The transmit delay value should take into account the transmission and propagation delays for the interface.

Note Each virtual link neighbor must include the transit area ID and the corresponding virtual link neighbor router ID for a virtual link to be correctly configured. Use the **show ipv6 ospf** command to obtain the router ID.

Examples

The following example establishes a virtual link in OSPFv3:

```
hostname(config-if)# ipv6 router ospf 1
hostname(config-rtr)# log-adjacency-changes
hostname(config-rtr)# area 1 virtual-link 192.168.255.1 hello interval 5
```

Related Commandsi

Command	Description
ipv6 router ospf	Enters router configuration mode for OSPFv3.
show ipv6 ospf	Displays general information about the OSPFv3 routing processes.
show running-config ipv6 router	Displays the IPv6 commands in the global router configuration.

arp

To add a static ARP entry to the ARP table, use the **arp** command in global configuration mode. To remove the static entry, use the **no** form of this command.

arp *interface_name ip_address mac_address* [**alias**]

no arp *interface_name ip_address mac_address*

Syntax Description

alias	(Optional) Enables proxy ARP for this mapping. If the ASA receives an ARP request for the specified IP address, then it responds with the ASA MAC address. When the ASA receives traffic destined for the host belonging to the IP address, the ASA forwards the traffic to the host MAC address that you specify in this command. This keyword is useful if you have devices that do not perform ARP, for example. In transparent firewall mode, this keyword is ignored; the ASA does not perform proxy ARP.
interface_name	The interface attached to the host network.
ip_address	The host IP address.
mac_address	The host MAC address.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	We introduced this command.

Usage Guidelines

Although hosts identify a packet destination by an IP address, the actual delivery of the packet on Ethernet relies on the Ethernet MAC address. When a router or host wants to deliver a packet on a directly connected network, it sends an ARP request asking for the MAC address associated with the IP address, and then delivers the packet to the MAC address according to the ARP response. The host or router keeps an ARP table so it does not have to send ARP requests for every packet it needs to deliver. The ARP table is dynamically updated whenever ARP responses are sent on the network, and if an entry is not used for a period of time, it times out. If an entry is incorrect (for example, the MAC address changes for a given IP address), the entry times out before it can be updated.

A static ARP entry maps a MAC address to an IP address and identifies the interface through which the host is reached. Static ARP entries do not time out, and might help you solve a networking problem. In transparent firewall mode, the static ARP table is used with ARP inspection (see the **arp-inspection** command).

Note In transparent firewall mode, dynamic ARP entries are used for traffic to and from the ASA, such as management traffic.

Examples

The following example creates a static ARP entry for 10.1.1.1 with the MAC address 0009.7cbe.2100 on the outside interface:

```
hostname(config)# arp outside 10.1.1.1 0009.7cbe.2100
```

Related Commands

Command	Description
arp timeout	Sets the time before the ASA rebuilds the ARP table.
arp-inspection	For transparent firewall mode, inspects ARP packets to prevent ARP spoofing.
show arp	Shows the ARP table.
show arp statistics	Shows ARP statistics.
show running-config arp	Shows the current configuration of the ARP timeout.

arp permit-nonconnected

To enable the ARP cache to also include non-directly-connected subnets, use the **arp permit-nonconnected** command in global configuration mode. To disable non-connected subnets, use the **no** form of this command.

arp permit-nonconnected

no arp permit-nonconnected

Syntax Description

This command has no arguments or keywords.

Command Default

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.4(5), 9.0(1)	We introduced this command.

Usage Guidelines

The ASA ARP cache only contains entries from directly-connected subnets by default. This command lets you enable the ARP cache to also include non-directly-connected subnets. We do not recommend enabling this feature unless you know the security risks. This feature could facilitate denial of service (DoS) attack against the ASA; a user on any interface could send out many ARP replies and overload the ASA ARP table with false entries.

You may want to use this feature if you use:

- Secondary subnets.
- Proxy ARP on adjacent routes for traffic forwarding.

Examples

The following example enables non-connected subnets:

```
hostname(config)# arp permit non-connected
```

Related Commands

Command	Description
arp	Adds a static ARP entry.

arp-inspection

To enable ARP inspection for transparent firewall mode, use the **arp-inspection** command in global configuration mode. To disable ARP inspection, use the **no** form of this command.

arp-inspection *interface_name* **enable** [**flood** | **no-flood**]

no arp-inspection *interface_name* **enable**

Syntax Description

enable	Enables ARP inspection.
flood	(Default) Specifies that packets that do not match any element of a static ARP entry are flooded out all interfaces except the originating interface. If there is a mismatch between the MAC address, the IP address, or the interface, then the ASA drops the packet. **Note** The management-specific interface, if present, never floods packets even if this parameter is set to flood.
interface_name	The interface on which you want to enable ARP inspection.
no-flood	(Optional) Specifies that packets that do not exactly match a static ARP entry are dropped.

Defaults

By default, ARP inspection is disabled on all interfaces; all ARP packets are allowed through the ASA. When you enable ARP inspection, the default is to flood non-matching ARP packets.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	—	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Configure static ARP entries using the **arp** command before you enable ARP inspection.

ARP inspection checks all ARP packets against static ARP entries (see the **arp** command) and blocks mismatched packets. This feature prevents ARP spoofing.

When you enable ARP inspection, the ASA compares the MAC address, IP address, and source interface in all ARP packets to static entries in the ARP table, and takes the following actions:

- If the IP address, MAC address, and source interface match an ARP entry, the packet is passed through.

- If there is a mismatch between the MAC address, the IP address, or the interface, then the ASA drops the packet.
- If the ARP packet does not match any entries in the static ARP table, then you can set the ASA to either forward the packet out all interfaces (flood), or to drop the packet.

Note The dedicated management interface, if present, never floods packets even if this parameter is set to flood.

ARP inspection prevents malicious users from impersonating other hosts or routers (known as ARP spoofing). ARP spoofing can enable a "man-in-the-middle" attack. For example, a host sends an ARP request to the gateway router; the gateway router responds with the gateway router MAC address. The attacker, however, sends another ARP response to the host with the attacker MAC address instead of the router MAC address. The attacker can then intercept all the host traffic before forwarding it on to the router.

ARP inspection ensures that an attacker cannot send an ARP response with the attacker MAC address, provided the correct MAC address and the associated IP address are in the static ARP table.

Note In transparent firewall mode, dynamic ARP entries are used for traffic to and from the ASA, such as management traffic.

Examples

The following example enables ARP inspection on the outside interface and sets the ASA to drop any ARP packets that do not match the static ARP entry:

```
hostname(config)# arp outside 209.165.200.225 0009.7cbe.2100
hostname(config)# arp-inspection outside enable no-flood
```

Related Commands

Command	Description
arp	Adds a static ARP entry.
clear configure arp-inspection	Clears the ARP inspection configuration.
firewall transparent	Sets the firewall mode to transparent.
show arp statistics	Shows ARP statistics.
show running-config arp	Shows the current configuration of the ARP timeout.

arp timeout

To set the time before the ASA rebuilds the ARP table, use the **arp timeout** command in global configuration mode. To restore the default timeout, use the **no** form of this command.

arp timeout *seconds*

no arp timeout *seconds*

Syntax Description

seconds	The number of seconds between ARP table rebuilds, from 60 to 4294967.

Defaults

The default value is 14,400 seconds (4 hours).

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	We introduced this command.

Usage Guidelines

Rebuilding the ARP table automatically updates new host information and removes old host information. You might want to reduce the timeout because the host information changes frequently.

Examples

The following example changes the ARP timeout to 5,000 seconds:

```
hostname(config)# arp timeout 5000
```

Related Commands

Command	Description
arp	Adds a static ARP entry.
arp-inspection	For transparent firewall mode, inspects ARP packets to prevent ARP spoofing.
show arp statistics	Shows ARP statistics.
show running-config arp timeout	Shows the current configuration of the ARP timeout.

asdm disconnect

To terminate an active ASDM session, use the **asdm disconnect** command in privileged EXEC mode.

asdm disconnect *session*

Syntax Description

session	The session ID of the active ASDM session to be terminated.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was changed from the **pdm disconnect** command to the **asdm disconnect** command.

Usage Guidelines

Use the **show asdm sessions** command to display a list of active ASDM sessions and their associated session IDs. Use the **asdm disconnect** command to terminate a specific session.

When you terminate an ASDM session, any remaining active ASDM sessions keep their associated session ID. For example, if there are three active ASDM sessions with the session IDs of 0, 1, and 2, and you terminate session 1, the remaining active ASDM sessions keep the session IDs 0 and 2. The next new ASDM session in this example would be assigned a session ID of 1, and any new sessions after that would begin with the session ID 3.

Examples

The following example terminates an ASDM session with a session ID of 0. The **show asdm sessions** commands display the active ASDM sessions before and after the **asdm disconnect** command is entered.

```
hostname# show asdm sessions

0 192.168.1.1
1 192.168.1.2
hostname# asdm disconnect 0
hostname# show asdm sessions

1 192.168.1.2
```

Related Commands

Command	Description
show asdm sessions	Displays a list of active ASDM sessions and their associated session ID.

asdm disconnect log_session

To terminate an active ASDM logging session, use the **asdm disconnect log_session** command in privileged EXEC mode.

asdm disconnect log_session *session*

Syntax Description

session	The session ID of the active ASDM logging session to be terminated.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Use the **show asdm log_sessions** command to display a list of active ASDM logging sessions and their associated session IDs. Use the **asdm disconnect log_session** command to terminate a specific logging session.

Each active ASDM session has one or more associated ASDM logging sessions. ASDM uses the logging session to retrieve syslog messages from the ASA. Terminating a log session may have an adverse effect on the active ASDM session. To terminate an unwanted ASDM session, use the **asdm disconnect** command.

Note Because each ASDM session has at least one ASDM logging session, the output for the **show asdm sessions** and **show asdm log_sessions** may appear to be the same.

When you terminate an ASDM logging session, any remaining active ASDM logging sessions keep their associated session ID. For example, if there are three active ASDM logging sessions with the session IDs of 0, 1, and 2, and you terminate session 1, the remaining active ASDM logging sessions keep the session IDs 0 and 2. The next new ASDM logging session in this example would be assigned a session ID of 1, and any new logging sessions after that would begin with the session ID 3.

Examples

The following example terminates an ASDM session with a session ID of 0. The **show asdm log_sessions** commands display the active ASDM sessions before and after the **asdm disconnect log_sessions** command is entered.

```
hostname# show asdm log_sessions

0 192.168.1.1
1 192.168.1.2
hostname# asdm disconnect 0
hostname# show asdm log_sessions

1 192.168.1.2
```

Related Commands

Command	Description
show asdm log_sessions	Displays a list of active ASDM logging sessions and their associated session ID.

asdm history enable

To enable ASDM history tracking, use the **asdm history enable** command in global configuration mode. To disable ASDM history tracking, use the **no** form of this command.

asdm history enable

no asdm history enable

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was changed from the **pdm history enable** command to the **asdm history enable** command.

Usage Guidelines

The information obtained by enabling ASDM history tracking is stored in the ASDM history buffer. You can view this information using the **show asdm history** command. The history information is used by ASDM for device monitoring.

Examples

The following example enables ASDM history tracking:

```
hostname(config)# asdm history enable
hostname(config)#
```

Related Commands

Command	Description
show asdm history	Displays the contents of the ASDM history buffer.

asdm image

To specify the location of the ASDM software image in flash memory, use the **asdm image** command in global configuration mode. To remove the image location, use the **no** form of this command.

asdm image *url*

no asdm image [*url*]

Syntax Description

url	Sets the location of the ASDM image in flash memory. See the following URL syntax: • **disk0:/**[*path*/]*filename* For the ASA 5500 series, this URL indicates the internal flash memory. You can also use **flash** instead of **disk0**; they are aliased. • **disk1:/**[*path*/]*filename* For the ASA 5500 series, this URL indicates the external flash memory card. • **flash:/**[*path*/]*filename* This URL indicates the internal flash memory.

Defaults

If you do not include this command in your startup configuration, the ASA uses the first ASDM image it finds at startup. It searches the root directory of internal Flash memory and then external flash memory. The ASA then inserts the **asdm image** command into the running configuration if it discovered an image.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You can store more than one ASDM software image in flash memory. If you enter the **asdm image** command to specify a new ASDM software image while there are active ASDM sessions, the new command does not disrupt the active sessions; active ASDM sessions continue to use the ASDM software image they started with. New ASDM sessions use the new software image. If you enter the **no asdm image** command, the command is removed from the configuration. However, you can still access ASDM from the ASA using the last-configured image location.

If you do not include this command in your startup configuration, the ASA uses the first ASDM image it finds at startup. It searches the root directory of internal flash memory and then external flash memory. The ASA then inserts the **asdm image** command into the running configuration if it discovered an image. Be sure to save the running configuration to the startup configuration using the **write memory** command. If you do not save the **asdm image** command to the startup configuration, every time you reboot, the ASA searches for an ASDM image and inserts the **asdm image** command into your running configuration. If you are using Auto Update, the automatic addition of this command at startup causes the configuration on the ASA not to match the configuration on the Auto Update Server. This mismatch causes the ASA to download the configuration from the Auto Update Server. To avoid unnecessary Auto Update activity, save the **asdm image** command to the startup configuration.

Examples

The following example sets the ASDM image to asdm.bin:

```
hostname(config)# asdm image flash:/asdm.bin
hostname(config)#
```

Related Commands

Command	Description
show asdm image	Displays the current ASDM image file.
boot	Sets the software image and startup configuration files.

asdm location

Caution Do not manually configure this command. ASDM adds **asdm location** commands to the running configuration and uses them for internal communication. This command is included in the documentation for informational purposes only.

asdm location *ip_addr netmask if_name*

asdm location *ipv6_addr/prefix if_name*

Syntax Description

if_name	The name of the highest security interface. If you have multiple interfaces at the highest security, then an arbitrary interface name is chosen. This interface name is not used, but is a required parameter.
ip_addr	The IP address used internally by ASDM to define the network topology.
ipv6_addr/prefix	The IPv6 address and prefix used internally by ASDM to define the network topology.
netmask	The subnet mask for *ip_addr*.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was changed from the **pdm location** command to the **asdm location** command.

Usage Guidelines

Do not manually configure or remove this command.

asp load-balance per-packet

For multicore ASAs, to change the load balancing behavior, use the **asp load-balance per-packet** command in global configuration mode. To restore the default load-balancing mechanism, use the **no** form of this command.

asp load-balance per-packet

no asp load-balance per-packet

Syntax Description

This command has no arguments or keywords.

Command Default

By default, the load-balancing mechanism favors many interfaces. The default behavior is to allow only one core to receive packets from an interface receive ring at a time.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
8.1(1)	We introduced this command.

Usage Guidelines

The default behavior is optimized for scenarios where packets are received uniformly on all interface rings. The per-packet behavior is optimized for scenarios where traffic is asymmetrically distributed on interface receive rings. Performance on the ASAs with multiple cores can vary depending on the number of processors, the number of interface receive rings, and the nature of the traffic passing through. Using the **asp load-balance per-packet** command allows multiple cores to work simultaneously on packets received from a single interface receive ring. This command provides for parallel processing if the packets received are spread over many independent connections. Note that this command can cause additional queuing overhead for packets from the same and related connections because these packets are processed by one core.

If the system drops packets, and the **show cpu** command output is far less than 100%, then this command may help your throughput if the packets belong to many unrelated connections. The CPU usage is a good indicator of how many cores are effectively being used.

For example on the ASA 5580-40, which includes 8 cores, if two cores are used, then the **show cpu** command output will be 25%; four cores will be 50%; and six cores will be 75%.

Examples

The following example enables per-packet load balancing:

```
hostname(config)# asp load-balance per-packet
```

Related Commands

Command	Description
show asp load-balance	Displays a histogram of the load balancer queue sizes.

asr-group

To specify an asymmetrical routing interface group ID, use the **asr-group** command in interface configuration mode. To remove the ID, use the **no** form of this command.

asr-group *group_id*

no asr-group *group_id*

Syntax Description

group_id	The asymmetric routing group ID. Valid values are from 1 to 32.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	—	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

When Active/Active failover is enabled, you may encounter situations where load balancing causes the return traffic for outbound connections to be routed through an active context on the peer unit, in which the context for the outbound connection is in the standby group.

The **asr-group** command causes incoming packets to be reclassified with the interface of the same ASR group if a flow with the incoming interface cannot be found. If reclassification finds a flow with another interface, and the associated context is in standby state, then the packet is forwarded to the active unit for processing.

Stateful Failover must be enabled for this command to take effect.

You can view ASR statistics using the **show interface detail** command. These statistics include the number of ASR packets sent, received, and dropped on an interface.

Note No two interfaces in the same context should be configured in the same ASR group.

Examples

The following example assigns the selected interfaces to the asymmetric routing group 1.

Context ctx1 configuration:

```
hostname/ctx1(config)# interface Ethernet2
```

```
hostname/ctx1(config-if)# nameif outside
hostname/ctx1(config-if)# ip address 192.168.1.11 255.255.255.0 standby 192.168.1.21
hostname/ctx1(config-if)# asr-group 1
```

Context ctx2 configuration:

```
hostname/ctx2(config)# interface Ethernet3
hostname/ctx2(config-if)# nameif outside
hostname/ctx2(config-if)# ip address 192.168.1.31 255.255.255.0 standby 192.168.1.41
hostname/ctx2(config-if)# asr-group 1
```

Related Commands

Command	Description
interface	Enters interface configuration mode.
show interface	Displays interface statistics.

assertion-consumer-url

To identify the URL that the security device accesses to contact the assertion consumer service, use the **assertion-consumer-url** command in the webvpn configuration mode for that specific SAML-type SSO server. To remove the URL from the assertion, use the **no** form of this command.

assertion-consumer-url *url*

no assertion-consumer-url [*url*]

Syntax Description

url	Specifies the URL of the assertion consumer service used by the SAML-type SSO server. The URL must start with either http:// or https:// and must be less than 255 alphanumeric characters.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Single sign-on (SSO) support, available only for WebVPN, lets users access different secure services on different servers without entering a username and password more than once. The ASA currently supports the SAML POST-type SSO server and the SiteMinder-type of SSO server.

This command applies only to SAML-type SSO servers.

If the URL begins with HTTPS, the requirement is to install the root certificate for the assertion consumer service SSL certificate.

Examples

The following example specifies the assertion consumer URL for a SAML-type SSO server:

```
hostname(config-webvpn)# sso server myhostname type saml-v1.1-post
hostname(config-webvpn-sso-saml# assertion-consumer-url https://saml-server/postconsumer
hostname(config-webvpn-sso-saml#
```

Related Commands

Command	Description
issuer	Specifies the SAML-type SSO server security device name.
request-timeout	Specifies the number of seconds before a failed SSO authentication attempt times out.
show webvpn sso-server	Displays the operating statistics for all SSO servers configured on the security device.
sso-server	Creates a WebVPN SSO server.
trustpoint	Specifies a trustpoint name that contains the certificate to use to sign the SAML-type browser assertion.

attribute

To specify attribute value pairs that the ASA writes to the DAP attribute database, enter the **attribute** command in dap test attributes mode.

attribute *name value*

Syntax Description

name	Specifies a well-known attribute name, or an attribute that incorporates a "label" tag. The label tag corresponds to the endpoint ID that you configure for file, registry, process, antivirus, antispyware, and personal firewall endpoint attributes in the DAP record.
value	The value assigned to the AAA attribute.

Command Default

No default value or behaviors.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
DAP attributes configuration	•	•	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Use this command multiple times to enter multiple attribute value pairs.

Normally the ASA retrieves user authorization attributes from the AAA server and retrieves endpoint attributes from Cisco Secure Desktop, Host Scan, CNA or NAC. For the test command, you specify the user authorization and endpoint attributes in this attributes mode. The ASA writes them to an attribute database that the DAP subsystem references when evaluating the AAA selection attributes and endpoint selection attributes for a DAP record.

Examples

The following example assumes that ASA selects two DAP records if the authenticated user is a member of the SAP group and has antivirus software installed on the endpoint system. The endpoint ID for the antivirus software endpoint rule is *nav*.

The DAP records have the following policy attributes:

DAP Record 1	DAP Record 2
action = continue	action = continue
port-forward = enable hostlist1	url-list = links2
—	url-entry = enable

```
hostname # test dynamic-access-policy attributes
hostname(config-dap-test-attr)# attribute aaa.ldap.memberof SAP
hostname(config-dap-test-attr)# attribute endpoint.av.nav.exists true
hostname(config-dap-test-attr)# exit

hostname # test dynamic-access-policy execute
Policy Attributes:
action = continue
port-forward = enable hostlist1
url-list = links2
url-entry = enable

hostname #
```

Related Commandsl

Command	Description
display	Displays current attribute lists.
dynamic-access-policy-record	Creates a DAP record.
test dynamic-access-policy attributes	Enters attributes.
test dynamic-access-policy execute	Executes the logic that generates the DAP and displays the resulting access policies to the console.

auth-cookie-name

To specify the name of an authentication cookie, use the **auth-cookie-name** command in aaa-server host configuration mode. This is an SSO with HTTP Forms command.

auth-cookie-name

Syntax Description

name	The name of the authentication cookie. The maximum name size is 128 characters.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Aaa-server host configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

The WebVPN server of the ASA uses an HTTP POST request to submit a single sign-on (SSO) authentication request to an SSO server. If authentication succeeds, the authenticating web server passes back an authentication cookie to the client browser. The client browser then authenticates to other web servers in the SSO domain by presenting the authentication cookie. The **auth-cookie-name** command configuresthe name of the authentication cookie to be used for SSO by the ASA.

A typical authentication cookie format is Set-Cookie: *cookie name=cookie value* [;*cookie attributes*]. In the following authentication cookie example, SMSESSION is the name that would be configured with the **auth-cookie-name** command:

```
Set-Cookie:
SMSESSION=yN4Yp5hHVNDgs4FT8dn7+Rwev41hsE49XlKc+1twie0gqnjbhkTkUnR8XWP3hvDH6PZPbHIHtWLDKTa8
ngDB/lbYTjIxrbDx8WPWwaG3CxVa3adOxHFR8yjD55GevK3ZF4ujgU1lhO6fta0dSSOSepWvnsCb7IFxCw+MGiw0o8
8uHa2t4l+SillqfJvcpuXfiIAO06D/dapWriHjNoi4llJOgCst33wEhxFxcWy2UWxs4EZSjsI5GyBnefSQTPVfma5d
c/emWor9vWr0HnTQaHP5rg5dTNqunkDEdMIHfbeP3F90cZejVzihM6igiS6P/CEJAjE;Domain=.example.com;Pa
th=/
```

Examples

The following example specifies the authentication cookie name of SMSESSION for the authentication cookie received from a web server named example.com:

```
hostname(config)# aaa-server testgrp1 host example.com
hostname(config-aaa-server-host)# auth-cookie-name SMSESSION
hostname(config-aaa-server-host)#
```

Related Commands

Command	Description
action-uri	Specifies a web server URI to receive a username and password for single sign-on authentication.
hidden-parameter	Creates hidden parameters for exchange with the authenticating web server.
password-parameter	Specifies the name of the HTTP POST request parameter in which a user password must be submitted for SSO authentication.
start-url	Specifies the URL at which to retrieve a pre-login cookie.
user-parameter	Specifies that a username parameter must be submitted as part of the HTTP POST request used for SSO authentication.

authenticated-session-username

To specify which authentication username to associate with the session when double authentication is enabled, use the **authenticated-session-username** command in tunnel-group general-attributes mode. To remove the attribute from the configuration, use the **no** form of this command.

authenticated-session-username {**primary** | **secondary**}

no authenticated-session-username

Syntax Description

primary	Uses the username from the primary authentication server.
secondary	Uses the username from the secondary authentication server.

Defaults

The default value is **primary**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Tunnel-group general-attributes configuration	•	—	•	—	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

This command is meaningful only when double authentication is enabled. The **authenticated-session-username** command selects the authentication server from which the ASA extracts the username to associate with the session.

Examples

The following example, entered in global configuration mode, creates an IPsec remote access tunnel group named remotegrp and specifies the use of the username from the secondary authentication server for the connection:

```
hostname(config)# tunnel-group remotegrp type ipsec_ra
hostname(config)# tunnel-group remotegrp general-attributes
hostname(config-tunnel-webvpn)# authenticated-session-username secondary
hostname(config-tunnel-webvpn)#
```

Related Commands

Command	Description
pre-fill-username	Enables the prefill username feature.
show running-config tunnel-group	Shows the indicated tunnel-group configuration.
tunnel-group general-attributes	Specifies the general attributes for the named tunnel group.
username-from-certificate	Specifies the field in a certificate to use as the username for authorization.

authentication-attr-from-server

To specify which authentication server authorization attributes to apply to the connection when double authentication is enabled, use the **authentication-attr-from-server** command in tunnel-group general-attributes mode. To remove the attribute from the configuration, use the **no** form of this command.

authentication-attr-from-server {**primary** | **secondary**}

no authentication-attr-from-server

Syntax Description

primary	Uses the primary authentication server.
secondary	Uses the secondary authentication server.

Defaults

The default value is **primary**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tunnel-group general-attributes configuration	•	—	•	—	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

This command is meaningful only when double authentication is enabled. The **authentication-attr-from-server** command selects the authentication server from which the ASA extracts the authorization attributes to be applied to the connection.

Examples

The following example, entered in global configuration mode, creates an IPsec remote access tunnel group named remotegrp and specifies that the authorization attributes to be applied to the connection must come from the secondary authentication server:

```
hostname(config)# tunnel-group remotegrp type ipsec_ra
hostname(config)# tunnel-group remotegrp general-attributes
hostname(config-tunnel-webvpn)# authentication-attr-from-server secondary
hostname(config-tunnel-webvpn)#
```

Related Commands

Command	Description
pre-fill-username	Enables the prefill username feature.
show running-config tunnel-group	Shows the indicated tunnel-group configuration.
tunnel-group general-attributes	Specifies the general attributes for the named tunnel group.
username-from-certificate	Specifies the field in a certificate to use as the username for authorization.

authentication-certificate

To request a certificate from a WebVPN client establing a connection, use the **authentication-certificate** command in webvpn configuration mode. To cancel the requirement for a client certificate, use the **no** form of this command.

authentication-certificate *interface-name*

no authentication-certificate [*interface-name*]

Syntax Description

interface-name	The name of the interface used to establish the connection. Available interfaces names are: • **inside** Name of interface GigabitEthernet0/1 • **outside** Name of interface GigabitEthernet0/0

Defaults

If you omit the **authentication-certificate** command, client certificate authentication is disabled. If you do not specify an interface name with the **authentication-certificate** command, the default interface name is **inside**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

For this command to take effect, WebVPN must already be enabled on the corresponding interface. An interface is configured and named with the **interface**, **IP address**, and **nameif** commands.

This command applies only to WebVPN client connections; however, the ability to specify client certificate authentication for management connections with the **http authentication-certificate** command is available on all platforms, including those that do not support WebVPN.

The ASA validates certificates using the PKI trustpoints. If a certificate does not pass validation, then one of the following actions occurs:

If:	Then:
The local CA embedded in the ASA is not enabled.	The ASA closes the SSL connection.
The local CA is enabled, and AAA authentication is not enabled.	The ASA redirects the client to the certificate enrollment page for the local CA to obtain a certificate.
Both the local CA and AAA authentication are enabled.	The client is redirected to a AAA authentication page. If configured, the client also is presented with a link to the enrollment page for the local CA.

Examples

The following example configures certificate authentication for WebVPN user connections on the outside interface:

```
hostname(config)# webvpn
hostname(config-webvpn)# authentication-certificate outside
hostname(config-webvpn)#
```

Related Commands

Command	Description
authentication (tunnel-group webvpn configuration mode)	Specifies that the members of a tunnel group must use a digital certificate for authentication.
http authentication-certificate	Specifies authentication by means of certificate for ASDM management connections to the ASA.
interface	Configures the interface used to establish the connection
show running-config ssl	Displays the current set of configured SSL commands.
ssl trust-point	Configures the SSL certificate trustpoint.

authentication-exclude

To enable end users to browse to configured links without logging in to clientless SSL VPN, enter the **authentication-exclude** command in webvpn configuration mode. Use this command multiple times to permit acccess to multiple sites.

authentication-exclude *url-fnmatch*

Syntax Description

url-fnmatch	Identifies the link to exempt from the requirement to log in to a clientless SSL VPN.

Command Default

Disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

This feature is useful when you require some internal resources to be available for public use via SSL VPN.

You need to distribute information about the links to end users in an SSL VPN-mangled form, for example, by browsing to these resources using SSL VPN and copying the resulting URLs into the information about links that you distribute.

Examples

The following example shows how to exempt two sites from authentication requirements:

```
hostname(config)# webvpn
hostname(config-webvpn)# authentication-exclude http://www.example.com/public/*
hostname(config-webvpn)# authentication-exclude *example.html
hostname(config-webvpn)# hostname #
```

authentication

To configure the authentication method for WebVPN and e-mail proxies, use the **authentication** command in various modes. To restore the default method, use the **no** form of this command. The ASA authenticates users to verify their identity.

authentication {[**aaa**] [**certificate**] [**mailhost**] [**piggyback**]}

no authentication [**aaa**] [**certificate**] [**mailhost**] [**piggyback**]

Syntax Description

aaa	Provides a username and password that the ASA checks with a previously configured AAA server.
certificate	Provides a certificate during SSL negotiation.
mailhost	Authenticates via the remote mail server for SMTPS only. For IMAP4S and POP3S, mailhost authentication is mandatory and not displayed as a configurable option.
piggyback	Requires that an HTTPS WebVPN session already exist. Piggyback authentication is available for e-mail proxies only.

Defaults

The following table shows the default authentication methods for WebVPN and e-mail proxies:

Protocol	Default Authentication Method
IMAP4S	Mailhost (required)
POP3S	Mailhost (required)
SMTPS	AAA
WebVPN	AAA

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Imap4s configuration	•	—	•	—	—
Pop3s configuration	•	—	•	—	—
Smtps configuration	•	—	•	—	—
Webvpn configuration	•		•		

Command History

Release	Modification
8.0(2)	This command was introduced.

Release	Modification
7.1(1)	This command was deprecated in webvpn configuration mode and moved to tunnel-group webvpn-attributes configuration mode for WebVPN.
8.0(2)	This command was modified to reflect changes to certificate authentication requirements.

Usage Guidelines

At least one authentication method is required. For WebVPN, for example, you can specify AAA authentication, certificate authentication, or both. You can enter these commands in either order.

WebVPN certificate authentication requires that HTTPS user certificates be required for the respective interfaces. That is, for this selection to be operational, before you can specify certificate authentication, you must have specified the interface in an **authentication-certificate** command.

If you enter this command in webvpn configuration mode, it is transformed into the same command in tunnel-group webvpn-attributes configuration mode.

For WebVPN, you can require both AAA and certificate authentication. In this case, users must provide both a certificate and a username and password. For e-mail proxy authentication, you can require more than one authentication method. Specifying the command again overwrites the current configuration.

Examples

The following example shows how to require that WebVPN users provide certificates for authentication:

```
hostname(config)# webvpn
hostname(config-webvpn)# authentication certificate
```

Related Commands

Command	Description
authentication-certificate	Requests a certificate from a WebVPN client establishing a connection.
show running-config	Displays the current tunnel group configuration.
clear configure aaa	Removes or resets the configured AAA values.
show running-config aaa	Displays the AAA configuration.

authentication eap-proxy

For L2TP over IPsec connections, to enable EAP and permit the ASA to proxy the PPP authentication process to an external RADIUS authentication server, use the **authentication eap-proxy** command in tunnel-group ppp-attributes configuration mode. To return the command to its default setting (permit CHAP and MS-CHAP), use the **no** form of this command.

authentication eap-proxy

no authentication eap-proxy

Syntax Description

This command has no keywords or arguments.

Defaults

By default, EAP is not a permitted authentication protocol.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tunnel-group ppp-attributes configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

You can apply this attribute only to the L2TP or IPsec tunnel group type.

Examples

The following example entered in config-ppp configuration mode, permits EAP for PPP connections for the tunnel group named ppremotegrp:

```
hostname(config)# tunnel-group ppremotegrp type IPSec/IPSec
hostname(config)# tunnel-group ppremotegrp ppp-attributes
hostname(config-ppp)# authentication eap
hostname(config-ppp)#
```

Related Commands

Command	Description
clear configure tunnel-group	Clears all configured tunnel groups.

Command	Description
show running-config tunnel-group	Shows the indicated certificate map entry.
tunnel-group-map default-group	Associates the certificate map entries created using the **crypto ca certificate map** command with tunnel groups.

authentication key eigrp

To enable authentication of EIGRP packets and specify the authentication key, use the **authentication key eigrp** command in interface configuration mode. To disable EIGRP authentication, use the **no** form of this command.

authentication key eigrp *as-number key* **key-id** *key-id*

no authentication key eigrp *as-number*

Syntax Description

as-number	The autonomous system number of the EIGRP process being authenticated. This must be the same value as configured for the EIGRP routing process.
key	Key to authenticate EIGRP updates. The key can contain up to 16 characters.
key-id *key-id*	Key identification value; valid values range from 1 to 255.

Defaults

EIGRP authentication is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

You must configure both the **authentication mode eigrp** and the **authentication key eigrp** commands on an interface to enable EIGRP message authentication. Use the **show running-config interface** command to view the **authentication** commands configured on an interface.

Examples

The following examples shows EIGRP authentication configured on interface GigabitEthernet0/3:

```
hostname(config)# interface Gigabit0/3
hostname(config-if)# authentication mode eigrp md5
hostname(config-if)# authentication key eigrp 100 thisismykey key_id 5
```

Related Commands

Command	Description
authentication mode eigrp	Specifies the type of authentication used for EIGRP authentication.

authentication mode eigrp

To specify the type of authentication used for EIGRP authentication, use the **authentication mode eigrp** command in interface configuration mode. To restore the default authentication method, use the **no** form of this command.

authentication mode eigrp *as-num* **md5**

no authentication mode eigrp *as-num* **md5**

Syntax Description

as-num	The autonomous system number of the EIGRP routing process.
md5	Uses MD5 for EIGRP message authentication.

Defaults

No authentication is provided by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

You must configure both the **authentication mode eigrp** and the **authentication key eigrp** commands on an interface to enable EIGRP message authentication. Use the **show running-config interface** command to view the **authentication** commands configured on an interface.

Examples

The following examples shows EIGRP authentication configured on interface GigabitEthernet0/3:

```
hostname(config)# interface GigabitEthernet0/3
hostname(config-if)# authentication mode eigrp 100 md5
hostname(config-if)# authentication key eigrp 100 thisismykey key_id 5
```

Related Commands

Command	Description
authentication key eigrp	Enables authentication of EIGRP packets and specifies the authentication key.

authentication ms-chap-v1

For L2TP over IPsec connections, to enable Microsoft CHAP, Version 1 authentication for PPP, use the **authentication ms-chap-v1** command in tunnel-group ppp-attributes configuration mode.To return the command to its default setting (permit CHAP and MS-CHAP), use the **no** form of this command. To disable Microsoft CHAP, Version 1, use the **no** form of this command.

authentication ms-chap-v1

no authentication ms-chap-v1

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tunnel-group ppp-attributes configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

You can apply this attribute only to the L2TP or IPsec tunnel-group type. This protocol is similar to CHAP, but more secure in that the server stores and compares only encrypted passwords rather than cleartext passwords as in CHAP. This protocol also generates a key for data encryption by MPPE.

Related Commands

Command	Description
clear configure tunnel-group	Clears the entire tunnel-group database or just the specified tunnel group.
show running-config tunnel-group	Displays the currently running tunnel-group configuration for a specified tunnel group or for all tunnel groups.
tunnel-group	Creates and manages the database of connection-specific records for IPsec and WebVPN tunnels.

authentication ms-chap-v2

For L2TP over IPsec connections, to enable Microsoft CHAP, Version 2 authentication for PPP, use the **authentication ms-chap-v1** command in tunnel-group ppp-attributes configuration mode. To return the command to its default setting (permit CHAP and MS-CHAP), use the **no** form of this command.

authentication ms-chap-v2

no authentication ms-chap-v2

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tunnel-group ppp-attributes configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

You can apply this attribute only to the L2TP or IPsec tunnel-group type.

This protocol is similar to CHAP but more secure in that the server stores and compares only encrypted passwords rather than clear text passwords as in CHAP. This protocol also generates a key for data encryption by MPPE.

Related Commands

Command	Description
clear configure tunnel-group	Clears the entire tunnel group database or just the specified tunnel group.
show running-config tunnel-group	Displays the currently running tunnel-group configuration for a specified tunnel group or for all tunnel groups.
tunnel-group	Creates and manages the database of connection-specific records for IPsec and WebVPN tunnels.

authentication pap

For L2TP over IPsec connections, to permit PAP authentiation for PPP, use the **authentication pap** command in tunnel-group ppp-attributes configuration mode. To return the command to its default setting (permit CHAP and MS-CHAP), use the **no** form of this command.

authentication pap

no authentication pap

Syntax Description

This command has no keywords or arguments.

Defaults

By default, PAP is not a permitted authentication protocol.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tunnel-group ppp-attributes configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

You can apply this attribute only to the L2TP or IPsec tunnel group type.

This protocol passes the clear text username and password during authentication and is not secure.

Examples

The following example entered in config-ppp configuration mode, permits PAP for PPP connections for a tunnel group named ppremotegrps:

```
hostname(config)# tunnel-group ppremotegrp type IPSec/IPSec
hostname(config)# tunnel-group ppremotegrp ppp-attributes
hostname(config-ppp)# authentication pap
hostname(config-ppp)#
```

Related Commands

Command	Description
clear configure tunnel-group	Clears all configured tunnel groups.

Command	Description
show running-config tunnel-group	Shows the indicated certificate map entry.
tunnel-group-map default-group	Associates the certificate map entries created using the **crypto ca certificate map** command with tunnel groups.

authentication-certificate

To request a certificate from a WebVPN client establishing a connection, use the **authentication-certificate** command in webvpn configuration mode. To cancel the requirement for a client certificate, use the **no** form of this command.

authentication-certificate *interface-name*

no authentication-certificate [*interface-name*]

Syntax Description

interface-name	The name of the interface used to establish the connection. Available interfaces names are: • **inside** Name of interface GigabitEthernet0/1 • **outside** Name of interface GigabitEthernet0/0

Defaults

If you omit the **authentication-certificate** command, client certificate authentication is disabled. If you do not specify an interface name with the **authentication-certificate** command, the default interface-name is **inside**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

For this command to take effect, WebVPN must already be enabled on the corresponding interface. An interface is configured and named with the **interface**, **IP address**, and **nameif** commands.

This command applies only to WebVPN client connections; however, the ability to specify client certificate authentication for management connections with the **http authentication-certificate** command is available on all platforms, including the platforms that do not support WebVPN.

The ASA validates certificates with the PKI trustpoints. If a certificate does not pass validation, then one of the following actions occurs:

If:	Then:
The local CA embedded in the ASA is not enabled.	The ASA closes the SSL connection.
The local CA is enabled, and AAA authentication is not enabled.	The ASA redirects the client to the certificate enrollment page for the local CA to obtain a certificate.
Both the local CA and AAA authentication are enabled.	The client is redirected to a AAA authentication page. If configured, the client also is presented with a link to the enrollment page for the local CA.

Examples

The following example configures certificate authentication for WebVPN user connections on the outside interface:

```
hostname(config)# webvpn
hostname(config-webvpn)# authentication-certificate outside
hostname(config-webvpn)#
```

Related Commands

Command	Description
authentication (tunnel-group webvpn configuration mode)	Specifies that the members of a tunnel group must use a digital certificate for authentication.
http authentication-certificate	Specifies authentication by means of certificate for ASDM management connections to the ASA.
interface	Configures the interface used to establish the connection.
show running-config ssl	Displays the current set of configured SSL commands.
ssl trust-point	Configures the SSL certificate trustpoint.

authentication-port

To specify the port number used for RADIUS authentication for this host, use the **authentication-port** command in aaa-server configuration host configuration mode. To remove the authentication port specification, use the **no** form of this command.

authentication-port *port*

no authentication-port

Syntax Description

port	A port number, in the range 1-65535, for RADIUS authentication.

Defaults

By default, the device listens for RADIUS on port 1645 (in compliance with RFC 2058). If the port is not specified, the RADIUS authentication default port number 1645 is used.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Aaa-server host configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	Semantic change to the command to support the specification of server ports on a per-host basis for server groups that contain RADIUS servers.

Usage Guidelines

This command specifies the destination TCP/UDP port number of the remote RADIUS server hosts to which you want to assign authentication functions. If your RADIUS authentication server uses a port other than 1645, you must configure the ASA for the appropriate port before starting the RADIUS service with the **aaa-server** command.

This command is valid only for server groups that are configured for RADIUS.

Examples

The following example configures a RADIUS AAA server named “srvgrp1” on host “1.2.3.4”, sets a timeout of 9 seconds, sets a retry interval of 7 seconds, and configures authentication port 1650.

```
hostname(config)# aaa-server svrgrp1 protocol radius
hostname(config-aaa-server-group)# aaa-server svrgrp1 host 1.2.3.4
hostname(config-aaa-server-host)# timeout 9
hostname(config-aaa-server-host)# retry-interval 7
hostname(config-aaa-server-host)# authentication-port 1650
hostname(config-aaa-server-host)# exit
hostname(config)#
```

Related Commands

Command	Description
aaa authentication	Enables or disables LOCAL, TACACS+, or RADIUS user authentication on a server designated by the **aaa-server** command or by ASDM user authentication.
aaa-server host	Enters aaa-server host configuration mode, so you can configure AAA server parameters that are host-specific.
clear configure aaa-server	Removes all AAA command statements from the configuration.
show running-config aaa-server	Displays AAA server statistics for all AAA servers, for a particular server group, for a particular server within a particular group, or for a particular protocol.

authentication-server-group (imap4s, pop3s, smtps)

To specify the set of authentication servers to use for e-mail proxies, use the **authentication-server-group** command in various modes. To remove authentication servers from the configuration, use the **no** form of this command.

authentication-server-group *group_tag*

no authentication-server-group

Syntax Description

group_tag	Identifies the previously configured authentication server or group of servers.

Defaults

No authentication servers are configured by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Imap4s configuration	•	—	•	—	—
Pop3s configuration	•	—	•	—	—
Smtps configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The ASA authenticates users to verify their identity.

If you configure AAA authentication, you must configure this attribute as well. Otherwise, authentication always fails.

Use the **aaa-server** command to configure authentication servers.

Examples

The following example shows how to configure an IMAP4S e-mail proxy to use the set of authentication servers named “IMAP4SSVRS”:

```
hostname(config)# imap4s
hostname(config-imap4s)# authentication-server-group IMAP4SSVRS
```

Related Commands

Command	Description
aaa-server host	Configures authentication, authorization, and accounting servers.

authentication-server-group (tunnel-group general-attributes)

To specify the AAA server group to use for user authentication for a tunnel group, use the **authentication-server-group** command in tunnel-group general-attributes configuration mode. To return this attribute to the default, use the **no** form of this command.

authentication-server-group [(*interface_name*)] *server_group* [**LOCAL**]

no authentication-server-group [(*interface_name*)] *server_group*

Syntax Description

interface_name	(Optional) Specifies the interface at which the IPsec tunnel terminates.
LOCAL	(Optional) Requires authentication with the local user database if all of the servers in the server group have been deactivated due to communication failures.
server_group	Identifies the previously configured authentication server or group of servers.

Defaults

The default setting for the server-group in this command is **LOCAL**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tunnel-group general-attributes configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	This command was deprecated in webvpn configuration mode and moved to tunnel-group general-attributes configuration mode.
8.0(2)	This command was enhanced to allow per-interface authentication for IPsec connections.

Usage Guidelines

You can apply this attribute to all tunnel-group types.

Use the **aaa-server** command to configure authentication servers and the **aaa-server-host** command to add servers to a previously configured AAA server group.

Examples

The following example entered in config-general configuration mode, configures an authentication server group named aaa-server456 for an IPsec remote access tunnel group named remotegrp:

```
hostname(config)# tunnel-group remotegrp type ipsec-ra
```

```
hostname(config)# tunnel-group remotegrp general-attributes
hostname(config-tunnel-general)# authentication-server-group aaa-server456
hostname(config-tunnel-general)#
```

Related Commands

Command	Description
aaa-server	Creates a AAA server group and configures AAA server parameters that are group-specific and common to all group hosts.
aaa-server host	Adds servers to a previously configured AAA server group and configures host-specific AAA server parameters.
clear configure tunnel-group	Clears all configured tunnel groups.
show running-config tunnel-group	Shows the tunnel group configuration for all tunnel groups or for a particular tunnel group.

authorization-required

To require users to authorize successfully prior to connecting, use the **authorization-required** command in various modes. To remove the attribute from the configuration, use the **no** form of this command.

authorization-required

no authorization-required

Syntax Description

This command has no arguments or keywords.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Imap4s configuration	•	—	•	—	—
Pop3s configuration	•	—	•	—	—
Smtps configuration	•	—	•	—	—
Tunnel-group general-attributes configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	This command was deprecated in webvpn configuration mode and moved to tunnel-group general-attributes configuration mode.
7.2(1)	Replaced the webvpn configuration mode with the imap4s, pop3s, and smtps configuration modes.

Examples

The following example, entered in global configuration mode, requires authorization based on the complete DN for users connecting through a remote access tunnel group named remotegrp. The first command configures the tunnel-group type as ipsec_ra (IPsec remote access) for the remote group named remotegrp. The second command enters tunnel-group general-attributes configuration mode for the specified tunnel group, and the last command specifies that authorization is required for the named tunnel group.

```
hostname(config)# tunnel-group remotegrp type ipsec_ra
hostname(config)# tunnel-group remotegrp general-attributes
hostname(config-tunnel-general)# authorization-required
hostname(config-tunnel-general)#
```

Related Commands

Command	Description
authorization-dn-attributes	Specifies the primary and secondary subject DN fields to use as the username for authorization.
clear configure tunnel-group	Clears all configured tunnel groups.
show running-config tunnel-group	Shows the indicated certificate map entry.
tunnel-group general-attributes	Specifies the general attributes for the named tunnel group.

authorization-server-group

To specify the set of authorization servers to use with WebVPN and e-mail proxies, use the **authorization-server-group** command in various modes. To remove authorization servers from the configuration, use the **no** form of this command.

authorization-server-group *group_tag*

no authorization-server-group

Syntax Description

group_tag	Identifies the previously configured authorization server or group of servers. Use the **aaa-server** command to configure authorization servers.

Defaults

No authorization servers are configured by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Imap4s configuration	•	—	•	—	—
Pop3s configuration	•	—	•	—	—
Smtps configuration	•	—	•	—	—
Tunnel-group general-attributes configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	This command was deprecated in webvpn configuration mode and moved to tunnel-group general-attributes configuration mode.

Usage Guidelines

The ASA uses authorization to verify the level of access to network resources that users are permitted.

If you enter this command in webvpn configuration mode, it is transformed into the same command in tunnel-group general-attributes mode.

When VPN authorization is defined as LOCAL, the attributes configured in the default group policy DfltGrpPolicy are enforced.

Examples

The following example shows how to configure POP3S e-mail proxy to use the set of authorization servers named “POP3Spermit”:

```
hostname(config)# pop3s
hostname(config-pop3s)# authorization-server-group POP3Spermit
```

The following example entered in tunnel-general configuration mode, configures an authorization server group named “aaa-server78” for an IPsec remote-access tunnel group named “remotegrp”:

```
hostname(config)# tunnel-group remotegrp type ipsec-ra
hostname(config)# tunnel-group remotegrp general-attributes
hostname(config-tunnel-general)# authorization-server-group aaa-server78
hostname(config-tunnel-general)#
```

Related Commands

Command	Description
aaa-server host	Configures authentication, authorization, and accounting servers.
clear configure tunnel-group	Clears all configured tunnel groups.
show running-config tunnel-group	Shows the tunnel group configuration for all tunnel groups or for a particular tunnel group.
tunnel-group general-attributes	Specifies the general attributes for the named tunnel group.

auth-prompt

To specify or change the AAA challenge text for through-the-ASA user sessions, use the **auth-prompt** command in global configuration mode. To remove the authentication challenge text, use the **no** form of this command.

auth-prompt prompt [**prompt** | **accept** | **reject**] *string*

no auth-prompt prompt [**prompt** | **accept** | **reject**]

Syntax Description

accept	If a user authentication via Telnet is accepted, displays the prompt *string*.
prompt	The AAA challenge prompt string follows this keyword.
reject	If a user authentication via Telnet is rejected, displays the prompt *string*.
string	A string of up to 235 alphanumeric characters or 31 words, limited by whichever maximum is first reached. Special characters, spaces, and punctuation characters are permitted. Entering a question mark or pressing the **Enter** key ends the string. (The question mark appears in the string.)

Defaults

If you do not specify an authentication prompt:

- FTP users see `FTP authentication`.
- HTTP users see `HTTP Authentication`.
- Telnet users see no challenge text.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	—	—	•

Command History

Release	Modification
7.0(1)	Minor semantic changes.

Usage Guidelines

The **auth-prompt** command lets you specify the AAA challenge text for HTTP, FTP, and Telnet access through the ASA when requiring user authentication from TACACS+ or RADIUS servers. This text is primarily for cosmetic purposes and displays above the username and password prompts that users see when logging in.

If user authentication occurs from Telnet, you can use the **accept** and **reject** options to display different status prompts to indicate that the authentication attempt is accepted or rejected by the AAA server.

If the AAA server authenticates the user, the ASA displays the **auth-prompt accept** text, if specified, to the user; otherwise, it displays the **reject** text, if specified. Authentication of HTTP and FTP sessions displays only the challenge text at the prompt. The **accept** and **reject** text do not appear.

Note Microsoft Internet Explorer displays up to 37 characters in an authentication prompt. Telnet and FTP display up to 235 characters in an authentication prompt.

Examples

The following example sets the authentication prompt to the string "Please enter your username and password.":

```
hostname(config)# auth-prompt prompt Please enter your username and password
```

After this string is added to the configuration, users see the following:

```
Please enter your username and password
User Name:
Password:
```

For Telnet users, you can also provide separate messages to display when the ASA accepts or rejects the authentication attempt; for example:

```
hostname(config)# auth-prompt reject Authentication failed. Try again.
hostname(config)# auth-prompt accept Authentication succeeded.
```

The following example sets the authentication prompt for a successful authentication to the string, "You're OK."

```
hostname(config)# auth-prompt accept You're OK.
```

After successfully authenticating, the user sees the following message:

```
You're OK.
```

Related Commands

Command	Description
clear configure auth-prompt	Removes the previously specified authentication prompt challenge text and reverts to the default value, if any.
show running-config auth-prompt	Displays the current authentication prompt challenge text.

auto-signon

To configure the ASA to automatically pass user login credentials for clientless SSL VPN connections on to internal servers, use the **auto-signon** command in any of three modes: webvpn configuration, webvpn group configuration, or webvpn username configuration mode. To disable auto-signon to a particular server, use the **no** form of this command with the original **ip**, **uri**, and **auth-type** arguments. To disable auto-signon to all servers, use the **no** form of this command without arguments.

auto-signon allow {**ip** *ip-address ip-mask* | **uri** *resource-mask*} **auth-type** {**basic** | **ftp** | **ntlm** | **all**}

no auto-signon [**allow** {**ip** *ip-address ip-mask* | **uri** *resource-mask*} **auth-type** {**basic** | **ftp** | **ntlm** | **all**}]

Syntax Description

all	Specifies both the NTLM and HTTP Basic authentication methods.
allow	Enables authentication to a particular server.
auth-type	Enables selection of an authentication method.
basic	Specifies the HTTP Basic authentication method.
ftp	Ftp and cifs authentication type.
ip	Specifies that an IP address and mask identifies the servers to be authenticated to.
ip-address	In conjunction with *ip-mask*, identifies the IP address range of the servers to be authenticated to.
ip-mask	In conjunction with *ip-address*, identifies the IP address range of the servers to be authenticated to.
ntlm	Specifies the NTLMv1 authentication method.
resource-mask	Identifies the URI mask of the servers to be authenticated to.
uri	Specifies that a URI mask identifies the servers to be authenticated to.

Defaults

By default, this feature is disabled for all servers.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration (global)	•	—	•	—	—
Webvpn group policy configuration	•	—	•	—	—
Webvpn username configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.
8.0(1)	NTLMv2 support was added. The **ntlm** keyword includes both NTLMv1 and NTLMv2.

Usage Guidelines

The **auto-signon** command is a single sign-on method for clientless SSL VPN users. It passes the login credentials (username and password) to internal servers for authentication using NTLM authentication, HTTP Basic authentication, or both. Multiple auto-signon commands can be entered and are processed according to the input order (early commands take precedence).

You can use the auto-signon feature in three modes: webvpn configuration group-policy, webvpn configuration, or webvpn username configuration mode. The typical precedence behavior applies, where username supersedes group, and group supersedes global. The mode you choose depends on the desired scope of authentication:

Mode	Scope
Webvpn configuration	All WebVPN users globally
Webvpn group configuration	A subset of WebVPN users defined by a group policy
Webvpn username configuration	An individual WebVPN user

Examples

The following example configures auto-signon for all clientless users, using NTLM authentication, to servers with IP addresses ranging from 10.1.1.0 to 10.1.1.255:

```
hostname(config)# webvpn
hostname(config-webvpn)# auto-signon allow ip 10.1.1.0 255.255.255.0 auth-type ntlm
```

The following example configures auto-signon for all clientless users, using HTTP Basic authentication, to servers defined by the URI mask https://*.example.com/*:

```
hostname(config)# webvpn
hostname(config-webvpn)# auto-signon allow uri https://*.example.com/* auth-type basic
```

The following example configures auto-signon for clientless users ExamplePolicy group policy, using either HTTP Basic or NTLM authentication, to servers defined by the URI mask https://*.example.com/*:

```
hostname(config)# group-policy ExamplePolicy attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# auto-signon allow uri https://*.example.com/* auth-type all
```

The following example configures auto-signon for a user named Anyuser, using HTTP Basic authentication, to servers with IP addresses ranging from 10.1.1.0 to 10.1.1.255:

```
hostname(config)# username Anyuser attributes
hostname(config-username)# webvpn
hostname(config-username-webvpn)# auto-signon allow ip 10.1.1.0 255.255.255.0 auth-type
basic
```

Related Commands

Command	Description
show running-config webvpn auto-signon	Displays auto-signon assignments of the running configuration.

auto-summary

To enable the automatic summarization of subnet routes into network-level routes, use the **auto-summary** command in router configuration mode. To disable route summarization, use the **no** form of this command.

auto-summary

no auto-summary

Syntax Description

This command has no arguments or keywords.

Defaults

Route summarization is enabled for RIP Version 1, RIP Version 2, and EIGRP.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.
8.0(2)	Support for EIGRP was added.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

Route summarization reduces the amount of routing information in the routing tables.

RIP Version 1 always uses automatic summarization. You cannot disable automatic summarization for RIP Version 1.

If you are using RIP Version 2, you can turn off automatic summarization by specifying the **no auto-summary** command. Disable automatic summarization if you must perform routing between disconnected subnets. When automatic summarization is disabled, subnets are advertised.

EIGRP summary routes are given an administrative distance value of 5. You cannot configure this value.

Only the **no** form of this command appears in the running configuration.

Examples

The following example disables RIP route summarization:

```
hostname(config)# router rip
hostname(config-router)# network 10.0.0.0
hostname(config-router)# version 2
hostname(config-router)# no auto-summary
```

The following example disables automatic EIGRP route summarization:

```
hostname(config)# router eigrp 100
hostname(config-router)# network 10.0.0.0
hostname(config-router)# no auto-summary
```

Related Commands

Command	Description
clear configure router	Clears all **router** commands and router configuration mode commands from the running configuration.
router eigrp	Enables the EIGRP routing process and enters EIGRP router configuration mode.
router rip	Enables the RIP routing process and enters RIP router configuration mode.
show running-config router	Displays the **router** commands and router configuration mode commands in the running configuration.

auto-update device-id

To configure the ASA device ID for use with an Auto Update Server, use the **auto-update device-id** command in global configuration mode. To remove the device ID, use the **no** form of this command.

auto-update device-id [**hardware-serial** | **hostname** | **ipaddress** [*if_name*] | **mac-address** [*if_name*] | **string** *text*]

no auto-update device-id [**hardware-serial** | **hostname** | **ipaddress** [*if_name*] | **mac-address** [*if_name*] | **string** *text*]

Syntax Description

hardware-serial	Uses the hardware serial number of the ASA to uniquely identify the device.
hostname	Uses the hostname of the ASA to uniquely identify the device.
ipaddress [*if_name*]	Uses the IP address of the ASA to uniquely identify the ASA. By default, the ASA uses the interface used to communicate with the Auto Update Server. If you want to use a different IP address, specify the *if_name* option.
mac-address [*if_name*]	Uses the MAC address of the ASA to uniquely identify the ASA. By default, the ASA uses the MAC address of the interface used to communicate with the Auto Update Server. If you want to use a different MAC address, specify the *if_name* option.
string *text*	Specifies the text string to uniquely identify the device to the Auto Update Server.

Defaults

The default ID is the hostname.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example sets the device ID to the serial number:

```
hostname(config)# auto-update device-id hardware-serial
```

Related Commands

auto-update poll-period	Sets how often the ASA checks for updates from an Auto Update Server.
auto-update server	Identifies the Auto Update Server.
auto-update timeout	Stops traffic from passing through the ASA if the Auto Update Server is not contacted within the timeout period.
clear configure auto-update	Clears the Auto Update Server configuration.
show running-config auto-update	Shows the Auto Update Server configuration.

auto-update poll-at

To schedule a specific time for the ASA to poll the Auto Update Server, use the **auto-update poll-at** command in global configuration mode. To remove all specified scheduling times for the ASA to poll the Auto Update Server, use the **no** form of this command.

auto-update poll-at *days-of-the-week time* [**randomize** *minutes*] [*retry_count* [*retry_period*]]

no auto-update poll-at *days-of-the-week time* [**randomize** *minutes*] [*retry_count* [*retry_period*]]

Syntax Description

days-of-the-week	Any single day or combination of days: Monday, Tuesday, Wednesday, Thursday, Friday, Saturday and Sunday. Other possible values are daily (Monday through Sunday), weekdays (Monday through Friday) and weekend (Saturday and Sunday).
randomize *minutes*	Specifies the period to randomize the poll time following the specified start time. from from 1 to 1439 minutes.
retry_count	Specifies how many times to try reconnecting to the Auto Update Server if the first attempt fails. The default is 0.
retry_period	Specifies how long to wait between connection attempts. The default is 5 minutes. The range is from 1 and 35791 minutes.
time	Specifies the time in the format HH:MM at which to start the poll. For example, 8:00 is 8:00 AM and 20:00 is 8:00 PM.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

The **auto-update poll-at** command specifies a time at which to poll for updates. If you enable the **randomize** option, the polling occurs at a random time within the range of the first *time* option and the specified number of minutes. The **auto-update poll-at** and **auto-update poll-period** commands are mutually exclusive. Only one of them can be configured.

Examples

In the following example, the ASA polls the Auto Update Server every Friday and Saturday night at a random time between 10:00 p.m. and 11:00 p.m. If the ASA is unable to contact the server, it tries two more times every 10 minutes.

```
hostname(config)# auto-update poll-at Friday Saturday 22:00 randomize 60 2 10
hostname(config)# auto-update server http://192.168.1.114/aus/autoupdate.asp
```

Related Commands

auto-update device-id	Sets the ASA device ID for use with an Auto Update Server.
auto-update poll-period	Sets how often the ASA checks for updates from an Auto Update Server.
auto-update timeout	Stops traffic from passing through the ASA if the Auto Update Server is not contacted within the timeout period.
clear configure auto-update	Clears the Auto Update Server configuration.
management-access	Enables access to an internal management interface on the ASA.
show running-config auto-update	Shows the Auto Update Server configuration.

auto-update poll-period

To configure how often the ASA checks for updates from an Auto Update Server, use the **auto-update poll-period** command in global configuration mode. To reset the parameters to the defaults, use the **no** form of this command.

auto-update poll-period *poll_period* [*retry_count* [*retry_period*]]

no auto-update poll-period *poll_period* [*retry_count* [*retry_period*]]

Syntax Description

poll_period	Specifies how often, in minutes, to poll an Auto Update Server, between 1 and 35791. The default is 720 minutes (12 hours).
retry_count	Specifies how many times to try reconnecting to the Auto Update Server if the first attempt fails. The default is 0.
retry_period	Specifies how long to wait, in minutes, between connection attempts, between 1 and 35791. The default is 5 minutes.

Defaults

The default poll period is 720 minutes (12 hours).

The default number of times to try reconnecting to the Auto Update Server if the first attempt fails is 0.

The default period to wait between connection attempts is 5 minutes.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **auto-update poll-at** and **auto-update poll-period** commands are mutually exclusive. Only one of them can be configured.

Examples

The following example sets the poll period to 360 minutes, the retries to 1, and the retry period to 3 minutes:

```
hostname(config)# auto-update poll-period 360 1 3
```

Related Commands

auto-update device-id	Sets the ASA device ID for use with an Auto Update Server.
auto-update server	Identifies the Auto Update Server.
auto-update timeout	Stops traffic from passing through the ASA if the Auto Update Server is not contacted within the timeout period.
clear configure auto-update	Clears the Auto Update Server configuration.
show running-config auto-update	Shows the Auto Update Server configuration.

auto-update server

To identify the Auto Update Server, use the **auto-update server** command in global configuration mode. To remove the server, use the **no** form of this command.

auto-update server *url* [**source** *interface*] [*verify-certificate*]

no auto-update server *url* [**source** *interface*] [*verify-certificate*]

Syntax Description

source *interface*	Specifies which interface for the source IP address to use when sending requests to the Auto Update Server.
url	Specifies the location of the Auto Update Server using the following syntax: **http**[**s**]**:**[[*user:password@*]*location* [:*port*]] **/** *pathname*
verify_certificate	Verifies the certificate returned by the Auto Update Server.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	The command was modified to add support for multiple servers.

Usage Guidelines

The ASA periodically contacts the Auto Update Server for any configuration, operating system, and ASDM updates.

You can configure multiple servers to work with auto-update. When checking for updates, a connection is made to the first server, but if that fails, then the next server is contacted. This process continues until all the servers have been tried. If all of them fail to connect, then a retry starting with the first server is attempted if the auto-update poll period has been configured to retry the connection.

For auto-update functionality to work correctly, you must use the **boot system configuration** command and ensure that it specifies a valid boot image. In addition, you must use the **asdm image** command with auto-update to update the ASDM software image.

If the interface specified in the **source** *interface* argument is the same interface specified with the **management-access** command, requests to the Auto Update Server are sent over the VPN tunnel.

Examples

The following example sets the Auto Update Server URL and specifies the interface as outside:

```
hostname(config)# auto-update server http://10.1.1.1:1741/ source outside
```

Related Commands

auto-update device-id	Sets the ASA device ID for use with an Auto Update Server.
auto-update poll-period	Sets how often the ASA checks for updates from an Auto Update Server.
auto-update timeout	Stops traffic from passing through the ASA if the Auto Update Server is not contacted within the timeout period.
clear configure auto-update	Clears the Auto Update Server configuration.
management-access	Enables access to an internal management interface on the ASA.
show running-config auto-update	Shows the Auto Update Server configuration.

auto-update timeout

To set a timeout period in which to contact the Auto Update Server, use the **auto-update timeout** command in global configuration mode. To remove the timeout, use the **no** form of this command.

auto-update timeout [*period*]

no auto-update timeout [*period*]

Syntax Description

period	Specifies the timeout period in minutes between 1 and 35791. The default is 0, which means there is no timeout. You cannot set the timeout to 0; use the **no** form of the command to reset it to 0.

Defaults

The default timeout is 0, which sets the ASA to never time out.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

A timeout condition is reported with syslog message 201008.

If the Auto Update Server has not been contacted for the timeout period, the ASA stops all traffic going through it. Set a timeout to ensure that the ASA has the most recent image and configuration.

Examples

The following example sets the timeout to 24 hours:

```
hostname(config)# auto-update timeout 1440
```

Related Commands

auto-update device-id	Sets the ASA device ID for use with an Auto Update Server.
auto-update poll-period	Sets how often the ASA checks for updates from an Auto Update Server.
auto-update server	Identifies the Auto Update Server.

clear configure auto-update	Clears the Auto Update Server configuration.
show running-config auto-update	Shows the Auto Update Server configuration.

backup interface through browse-networks Commands

backup interface

For models with a built-in switch, such as the ASA 5505, use the **backup interface** command in interface configuration mode to identify a VLAN interface as a backup interface, for example, to an ISP. To restore normal operation, use the **no** form of this command.

backup interface vlan *number*

no backup interface vlan *number*

Syntax Description

vlan *number*	Specifies the VLAN ID of the backup interface.

Defaults

By default, the **backup interface** command is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.
7.2(2)	The Security Plus license no longer limits the number of VLAN interfaces to 3 for normal traffic, 1 for a backup interface, and 1 for failover; you can now configure up to 20 interfaces without any other limitations. Therefore ,the **backup interface** command is not required to enable more than 3 interfaces.

Usage Guidelines

This command can be entered in the interface configuration mode for a VLAN interface only. This command blocks all through traffic on the identified backup interface unless the default route through the primary interface goes down.

When you configure Easy VPN with the **backup interface** command, if the backup interface becomes the primary, then the ASA moves the VPN rules to the new primary interface. See the **show interface** command to view the state of the backup interface.

Be sure to configure default routes on both the primary and backup interfaces so that the backup interface can be used when the primary fails. For example, you can configure two default routes: one for the primary interface with a lower administrative distance, and one for the backup interface with a higher distance. See the **dhcp client route distance** command to override the administrative distance for default routes acquired from a DHCP server. To configure dual ISP support, see the **sla monitor** and **track rtr** commands for more information.

You cannot configure a backup interface when the **management-only** command is already configured on the interface.

Examples

The following example configures four VLAN interfaces. The backup-isp interface only allows through traffic when the primary interface is down. The **route** commands create default routes for the primary and backup interfaces, with the backup route at a lower administrative distance.

```
hostname(config)# interface vlan 100
hostname(config-if)# nameif outside
hostname(config-if)# security-level 0
hostname(config-if)# ip address 10.1.1.1 255.255.255.0
hostname(config-if)# backup interface vlan 400
hostname(config-if)# no shutdown

hostname(config-if)# interface vlan 200
hostname(config-if)# nameif inside
hostname(config-if)# security-level 100
hostname(config-if)# ip address 10.2.1.1 255.255.255.0
hostname(config-if)# no shutdown

hostname(config-if)# interface vlan 300
hostname(config-if)# nameif dmz
hostname(config-if)# security-level 50
hostname(config-if)# ip address 10.3.1.1 255.255.255.0
hostname(config-if)# no shutdown

hostname(config-if)# interface vlan 400
hostname(config-if)# nameif backup-isp
hostname(config-if)# security-level 50
hostname(config-if)# ip address 10.1.2.1 255.255.255.0
hostname(config-if)# no shutdown

hostname(config)# interface ethernet 0/0
hostname(config-if)# switchport access vlan 100
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/1
hostname(config-if)# switchport access vlan 200
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/2
hostname(config-if)# switchport access vlan 300
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/3
hostname(config-if)# switchport access vlan 400
hostname(config-if)# no shutdown

hostname(config-if)# route outside 0 0 10.1.1.2 1
hostname(config)# route backup-isp 0 0 10.1.2.2 2
```

Related Commands

Command	Description
forward interface	Restricts an interface from initiating traffic to another interface.
interface vlan	Creates a VLAN interface and enters interface configuration mode.
dhcp client route distance	Overrides the administrative distance for default routes acquired from a DHCP server.
sla monitor	Creates an SLA monitoring operation for static route tracking.
track rtr	Tracks the state of an SLA monitoring operation.

backup-servers

To configure backup servers, use the **backup-servers** command in group-policy configuration mode. To remove a backup server, use the **no** form of this command.

backup-servers {*server1 server2. . . . server10* | **clear-client-config** | **keep-client-config**}

no backup-servers [*server1 server2. . . . server10* | **clear-client-config** | **keep-client-config**]

Syntax Description

clear-client-config	Specifies that the client uses no backup servers. The ASA pushes a null server list.
keep-client-config	Specifies that the ASA sends no backup server information to the client. The client uses its own backup server list, if configured.
server1 server 2.... server10	Provides a space delimited, priority-ordered list of servers for the VPN client to use when the primary ASA is unavailable. Identifies servers by IP address or hostname. The list can be 500 characters long, but can contain only 10 entries.

Defaults

Backup servers do not exist until you configure them, either on the client or on the primary ASA.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Group-policy configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To remove the backup-servers attribute from the running configuration, use the **no** form of this command without arguments. This enables inheritance of a value for backup servers from another group policy.

IPsec backup servers let a VPN client connect to the central site when the primary ASA is unavailable. When you configure backup servers, the ASA pushes the server list to the client as the IPsec tunnel is established.

Configure backup servers either on the client or on the primary ASA. If you configure backup servers on the ASA, it pushes the backup server policy to the clients in the group, replacing the backup server list on the client if one is configured.

Note If you are using hostnames, it is wise to have backup DNS and WINS servers on a separate network from that of the primary DNS and WINS servers. Otherwise, if clients behind a hardware client obtain DNS and WINS information from the hardware client via DHCP, the connection to the primary server is lost, and the backup servers have different DNS and WINS information, clients cannot be updated until the DHCP lease expires. In addition, if you use hostnames and the DNS server is unavailable, significant delays can occur.

Examples

The following example shows how to configure backup servers with IP addresses 10.10.10.1 and 192.168.10.14, for the group policy named "FirstGroup":

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# backup-servers 10.10.10.1 192.168.10.14
```

banner

To configure the ASDM, session, login, or message-of-the-day banner, use the **banner** command in global configuration mode. To remove all lines from the banner keyword specified (**exec**, **login**, or **motd**), use the **no** form of this command.

banner {**asdm | exec | login | motd** *text*}

[no] banner {**asdm | exec | login | motd** [*text*]}

Syntax Description

asdm	Configures the system to display a banner after you successfully log in to ASDM. The user is prompted to either continue to complete login, or to disconnect. This option lets you require users to accept the terms of a written policy before connecting.
exec	Configures the system to display a banner before displaying the enable prompt.
login	Configures the system to display a banner before the password login prompt when accessing the ASA using Telnet or a serial console.
motd	Configures the system to display a message-of-the-day banner when you first connect.
text	Line of message text to display.

Defaults

The default is no banner.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.2(4)/8.0(3)	The **asdm** keyword was added.
9.0(1)	The **banner login** command supports serial console connections.

Usage Guidelines

The **banner** command configures a banner to display for the keyword specified. The *text* string consists of all characters following the first white space (space) until the end of the line (carriage return or line feed [LF]). Spaces in the text are preserved. However, you cannot enter tabs through the CLI.

Subsequent *text* entries are added to the end of an existing banner unless the banner is cleared first.

Note The tokens $(domain) and $(hostname) are replaced with the hostname and domain name of the ASA. When you enter a $(system) token in a context configuration, the context uses the banner configured in the system configuration.

Multiple lines in a banner are handled by entering a new banner command for each line that you want to add. Each line is then appended to the end of the existing banner.

Note The maximum length of the authorization prompt for banners is 235 characters or 31 words, whichever limitation is reached first.

When accessing the ASA through Telnet or SSH, the session closes if there is not enough system memory available to process the banner messages or if a TCP write error occurs. Only the **exec** and **motd** banners support access to the ASA through SSH. The login banner does not support SSHv1 clients or SSH clients that do not pass the username as part of the initial connection.

To replace a banner, use the **no banner** command before adding the new lines.

Use the **no banner** {**exec | login | motd**} command to remove all the lines for the banner keyword specified.

The **no banner** command does not selectively delete text strings, so any *text* that you enter at the end of the **no banner** command is ignored.

Examples

The following example shows how to configure the **asdm**, **exec**, **login**, and **motd** banners:

```
hostname(config)# banner asdm You successfully logged in to ASDM
hostname(config)# banner motd Think on These Things
hostname(config)# banner exec Enter your password carefully
hostname(config)# banner login Enter your password to log in
hostname(config)# show running-config banner
asdm:
You successfully logged in to ASDM

exec:
Enter your password carefully

login:
Enter your password to log in

motd:
Think on These Things
```

The following example shows how to add a second line to the **motd** banner:

```
hostname(config)# banner motd and Enjoy Today
hostname(config)# show running-config banner motd
Think on These Things and Enjoy Today
```

Related Commands

Command	Description
clear configure banner	Removes all banners.
show running-config banner	Displays all banners.

banner (group-policy)

To display a banner or welcome text on remote clients when they connect, use the **banner** command in group-policy configuration mode. To delete a banner, use the **no** form of this command.

banner {**value** *banner_string* | **none**}

no banner

Note If you configure multiple banners under a VPN group policy, and you delete any one of the banners, all banners are deleted.

Syntax Description

none	Sets a banner with a null value, thereby disallowing a banner. Prevents inheriting a banner from a default or specified group policy.
value *banner_string*	Constitutes the banner text. Maximum string size is 500 characters. Use the "\n" sequence to insert a carriage return.

Defaults

There is no default banner.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To prevent inheriting a banner, use the **banner none** command.

The IPsec VPN client supports full HTML for the banner. However, the clientless portal and the AnyConnect client support partial HTML. To ensure the banner displays correctly to remote users, follow these guidelines:

- For IPsec client users, use the /n tag.
- For AnyConnect client users, use the <BR> tag.
- For clientless users, use the <BR> tag.

Examples

The following example shows how to create a banner for the group policy named “FirstGroup”:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# banner value Welcome to Cisco Systems 7.0.
```

blocks

To allocate additional memory to block diagnostics (displayed by the **show blocks** command), use the **blocks** command in privileged EXEC mode. To set the value back to the default, use the **no** form of this command.

blocks queue history enable [*memory_size*]

no blocks queue history enable [*memory_size*]

Syntax Description

memory_size	(Optional) Sets the memory size for block diagnostics in bytes, instead of applying the dynamic value. If this value is greater than free memory, an error message appears and the value is not accepted. If this value is greater than 50% of free memory, a warning message appears, but the value is accepted.

Defaults

The default memory assigned to track block diagnostics is 2136 bytes.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To view the currently allocated memory, enter the **show blocks queue history** command.

If you reload the ASA, the memory allocation returns to the default.

The amount of memory allocated will be at most 150 KB, but never more than 50% of free memory. Optionally, you can specify the memory size manually.

Examples

The following example increases the memory size for block diagnostics:

```
hostname# blocks queue history enable
```

The following example increases the memory size to 3000 bytes:

```
hostname# blocks queue history enable 3000
```

The following example attempts to increase the memory size to 3000 bytes, but the value is more than the available free memory:

```
hostname# blocks queue history enable 3000
ERROR: memory size exceeds current free memory
```

The following example increases the memory size to 3000 bytes, but the value is more than 50% of the free memory:

```
hostname# blocks queue history enable 3000
WARNING: memory size exceeds 50% of current free memory
```

Related Commands

Command	Description
clear blocks	Clears the system buffer statistics.
show blocks	Shows the system buffer usage.

boot

To specify which image the system uses at the next reload and which configuration file the system uses at startup, use the **boot** command in global configuration mode. To restore the default value, use the **no** form of this command.

boot {**config** | **system**} *url*

no boot {**config** | **system**} *url*

Syntax Description

config	Specifies which configuration file to use when the system is loaded.
system	Specifies which image file to use when the system is loaded.
url	Sets the location of the image or configuration. In multiple context mode, all remote URLs must be accessible from the admin context. See the following URL syntax: • **disk0:/**[*path*/]*filename* For the ASA, this URL indicates the internal flash memory. You can also use **flash** instead of **disk0**; they are aliased. • **disk1:/**[*path*/]*filename* For the ASA, this URL indicates the external flash memory card. This option is not available for the ASA Services Module. • **flash:/**[*path*/]*filename* This URL indicates the internal flash memory. • **tftp://**[*user*[**:***password*]@]*server*[:*port*]**/**[*path*/]*filename*[**;int=***interface_name*] Specify the interface name if you want to override the route to the server address. This option is available for the **boot system** command for the ASA 5500 series only; the **boot config** command requires the startup configuration to be on the flash memory. Only one **boot system tftp:** command can be configured, and it must be the first one configured.

Defaults

If the **boot config** command is not specified, the startup configuration file will be saved to a hidden location, and used only with commands that use it, such as the **show startup-config** command and the **copy startup-config** command.

For the **boot system** command, there are no defaults. If you do not specify a location, the ASA searches only the internal flash memory for the first valid image to boot. If no valid image is found, no system image will be loaded, and the ASA will boot loop until you break into the ROMMON or Monitor mode.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

When you save this command to the startup configuration using the **write memory** command, you also save the settings to the BOOT and CONFIG_FILE environment variables, which the ASA uses to determine the startup configuration and software image to boot when it restarts.

You can enter up to four **boot system** command entries, to specify different images to boot from in order, and the ASA will boot the first valid image it finds.

If you want to use a startup configuration file at the new location that is different from the current running configuration, then be sure to copy the startup configuration file to the new location after you save the running configuration. Otherwise, the running configuration will overwrite the new startup configuration when you save it.

Tip The ASDM image file is specified by the **asdm image** command.

Examples

The following example specifies that at startup the ASA should load a configuration file called configuration.txt:

```
hostname(config)# boot config disk0:/configuration.txt
```

Related Commands

Command	Description
asdm image	Specifies the ASDM software image.
show bootvar	Displays boot file and configuration environment variables.

border style

To customize the border of the WebVPN Home page that is displayed to authenticated WebVPN users, use the **border style** command in customization configuration mode. To remove the command from the configuration and cause the value to be inherited, use the **no** form of this command.

border style *value*

no border style *value*

Syntax Description

value	Specifies the Cascading Style Sheet (CSS) parameters to use. The maximum number of characters allowed is 256.

Defaults

The default style of the border is background-color:#669999;color:white.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Customization configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

The **style** option is expressed as any valid Cascading Style Sheet (CSS) parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium (W3C) website at www.w3.org. Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at www.w3.org/TR/CSS21/propidx.html.

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.
- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma-separated entry indicates the level of intensity of each color to combine with the others.
- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.

Note To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

Examples

The following example customizes the background color of the border to the RGB color #66FFFF, a shade of green:

```
hostname(config)# webvpn
hostname(config-webvpn)# customization cisco
hostname(config-webvpn-custom)# border style background-color:66FFFF
```

Related Commands

Command	Description
application-access	Customizes the Application Access box of the WebVPN Home page.
browse-networks	Customizes the Browse Networks box of the WebVPN Home page.
web-bookmarks	Customizes the Web Bookmarks title or links on the WebVPN Home page.
file-bookmarks	Customizes the File Bookmarks title or links on the WebVPN Home page.

bridge-group

To assign an interface to a bridge group in transparent firewall mode, use the **bridge-group** command in interface configuration mode. To unassign an interface, use the **no** form of this command. A transparent firewall connects the same network on its interfaces. Up to four interfaces can belong to a bridge group.

bridge-group *number*

no bridge-group *number*

Syntax Description

number	Specifies an integer between 1 and 100.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	—	•	•	•	—

Command History

Release	Modification
8.4(1)	We introduced this command.

Usage Guidelines

You can configure up to eight bridge groups of four interfaces each. You can only assign four interfaces to a bridge group. You cannot assign the same interface to more than one bridge group.

Assign a management IP address to the bridge group using the **interface bvi** command and then the **ip address** command.

Each bridge group connects to a separate network. Bridge group traffic is isolated from other bridge groups; traffic is not routed to another bridge group within the ASA, and traffic must exit the ASA before it is routed by an external router back to another bridge group in the ASA.

You might want to use more than one bridge group if you do not want the overhead of security contexts, or want to maximize your use of security contexts. Although the bridging functions are separate for each bridge group, many other functions are shared between all bridge groups. For example, all bridge groups share a syslog server or AAA server configuration. For complete security policy separation, use security contexts with one bridge group in each context.

Examples

The following example assigns GigabitEthernet 1/1 to bridge group 1:

```
hostname(config)# interface gigabitethernet 1/1
```

```
hostname(config-if)# bridge-group 1
```

Related Commands

Command	Description
interface	Configures an interface.
interface bvi	Enters the interface configuration mode for a bridge group so you can set the management IP address.
ip address	Sets the management IP address for a bridge group.
nameif	Sets the interface name.
security-level	Sets the interface security level.

browse-networks

To customize the Browse Networks box of the WebVPN Home page that is displayed to authenticated WebVPN users, use the **browse-networks** command in webvpn customization configuration mode. To remove the command from the configuration and cause the value to be inherited, use the **no** form of this command.

browse-networks {**title** | **message** | **dropdown**} {**text** | **style**} *value*

no browse-networks [{**title** | **message** | **dropdown**} {**text** | **style**} *value*]

Syntax Description

dropdown	Specifies a change to the drop-down list.
message	Specifies youa change to the message displayed under the title.
style	Specifies a change to the style.
text	Specifies a change to the text.
title	Specifies a change to the title.
value	Indicates the actual text to display. The maximum number of characters allowed is 256. This value applies to Cascading Style Sheet (CSS) parameters also.

Defaults

The default title text is “Browse Networks”.

The default title style is:

background-color:#99CCCC;color:black;font-weight:bold;text-transform:uppercase

The default message text is “Enter Network Path”.

The default message style is:

background-color:#99CCCC;color:maroon;font-size:smaller.

The default dropdown text is “File Folder Bookmarks”.

The default dropdown style is:

border:1px solid black;font-weight:bold;color:black;font-size:80%.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn customization configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

The **style** option is expressed as any valid Cascading Style Sheet (CSS) parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium (W3C) website at www.w3.org. Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at www.w3.org/TR/CSS21/propidx.html.

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.
- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma separated entry indicates the level of intensity of each color to combine with the others.
- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.

Note To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

Examples

The following example changes the title to “Browse Corporate Networks”, and the text within the style to blue:

```
F1-asa1(config)# webvpn
F1-asa1(config-webvpn)# customization cisco
F1-asa1(config-webvpn-custom)# browse-networks title text Browse Corporate Networks
F1-asa1(config-webvpn-custom)# browse-networks title style color:blue
```

Related Commands

Command	Description
application-access	Customizes the Application Access box of the WebVPN Home page.
file-bookmarks	Customizes the File Bookmarks title or links on the WebVPN Home page.
web-applications	Customizes the Web Application box of the WebVPN Home page.
web-bookmarks	Customizes the Web Bookmarks title or links on the WebVPN Home page.

CHAPTER 5

cache through clear compression Commands

cache

To enter cache mode and set values for caching attributes, enter the **cache** command in webvpn configuration mode. To remove all cache related commands from the configuration and reset them to their default values, enter the **no** form of this command.

cache

no cache

Defaults

Enabled with default settings for each cache attribute.

Command Modes

The following table shows the modes in which you enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

Caching stores frequently reused objects in the system cache, which reduces the need to perform repeated rewriting and compressing of content. It reduces traffic between WebVPN and both the remote servers and end-user browsers, so that many applications run much more efficiently.

Examples

The following example shows how to enter cache mode:

```
hostname(config)# webvpn
hostname(config-webvpn)# cache
hostname(config-webvpn-cache)#
```

Related Commands

Command	Description
cache-static-content	Caches content not subject to rewriting.
disable	Disables caching.
expiry-time	Configures the expiration time for caching objects without revalidating them.
lmfactor	Sets a revalidation policy for caching objects that have only the last-modified timestamp.
max-object-size	Defines the maximum size of an object to cache.
min-object-size	Defines the minimum sizze of an object to cache.

cache-time

To specify in minutes how long to allow a CRL to remain in the cache before considering it stale, use the **cache-time** command in ca-crl configuration mode, which is accessible from crypto ca trustpoint configuration mode. To return to the default value, use the **no** form of this command.

cache-time *refresh-time*

no cache-time

Syntax Description

refresh-time	Specifies the number of minutes to allow a CRL to remain in the cache. The range is 1 - 1440 minutes. If the NextUpdate field is not present in the CRL, the CRL is not cached.

Defaults

The default setting is 60 minutes.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ca-crl configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example enters ca-crl configuration mode, and specifies a cache time refresh value of 10 minutes for trustpoint central:

```
hostname(configure)# crypto ca trustpoint central
hostname(ca-trustpoint)# crl configure
hostname(ca-crl)# cache-time 10
hostname(ca-crl)#
```

Related Commands

Command	Description
crl configure	Enters crl configuration mode.
crypto ca trustpoint	Enters trustpoint configuration mode.
enforcenextupdate	Specifies how to handle the NextUpdate CRL field in a certificate.

call-agent

To specify a group of call agents, use the **call-agent** command in mgcp map configuration mode. To remove the configuration, use the **no** form of this command.

call-agent *ip_address group_id*

no call-agent *ip_address group_id*

Syntax Description

group_id	The ID of the call agent group, from 0 to 2147483647.
ip_address	The IP address of the gateway.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Mgcp map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Use the **call-agent** command to specify a group of call agents that can manage one or more gateways. The call agent group information is used to open connections for call agents in the group (other than the one to which a gateway sends a command) so that any of the call agents can send the response. Call agents with the same *group_id* belong to the same group. A call agent may belong to more than one group.

Examples

The following example allows call agents 10.10.11.5 and 10.10.11.6 to control gateway 10.10.10.115, and allows call agents 10.10.11.7 and 10.10.11.8 to control both gateways 10.10.10.116 and 10.10.10.117:

```
hostname(config)# mgcp-map mgcp_inbound
hostname(config-mgcp-map)# call-agent 10.10.11.5 101
hostname(config-mgcp-map)# call-agent 10.10.11.6 101
hostname(config-mgcp-map)# call-agent 10.10.11.7 102
hostname(config-mgcp-map)# call-agent 10.10.11.8 102
hostname(config-mgcp-map)# gateway 10.10.10.115 101
hostname(config-mgcp-map)# gateway 10.10.10.116 102
hostname(config-mgcp-map)# gateway 10.10.10.117 102
```

Related Commands

Commands	Description
debug mgcp	Enables the display of debugging information for MGCP.
mgcp-map	Defines an MGCP map and enables MGCP map configuration mode.
show mgcp	Displays MGCP configuration and session information.

call-duration-limit

To configure the call duration for an H.323 call, use the **call-duration-limit** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

call-duration-limit *hh:mm:ss*

no call-duration-limit *hh:mm:ss*

Syntax Description

hh:mm:ss	Specifies the duration in hours, minutes, and seconds.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to configure the call duration for an H.323 call:

```
hostname(config)# policy-map type inspect h323 h323_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# call-duration-limit 0:1:0
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3 or 4 policy map.
show running-config policy-map	Displays all current policy map configurations.

call-party-numbers

To enforce sending call party numbers during an H.323 call setup, use the **call-party-numbers** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

call-party-numbers

no call-party-numbers

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to enforce call party numbers during call setup for an H.323 call:

```
hostname(config)# policy-map type inspect h323 h323_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# call-party-numbers
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3 or 4 policy map.
show running-config policy-map	Displays all current policy map configurations.

call-home

To enter call home configuration mode, use the **call-home** command in global configuration mode.

call-home

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
8.2(2)	This command was introduced.

Usage Guidelines

After you enter the **call-home** command, the prompt changes to hostname (cfg-call-home)#, and you have access to the following Call Home configuration commands:

- [**no**] **alert-group** {**group name** | **all**}—Enables or disables the Smart Call Home group. The default is enabled for all alert-groups.
  group name: Syslog, diagnostic, environment, inventory, configuration, snapshot, threat, telemetry, test.
- [**no**] **contact-e-mail-addr e-mail-address**—Specifies the customer contact e-mail address. This field is required.
  e-mail-address: A customer e-mail address of up to 127 characters.
- [**no**] **contact-name contact name**—Specifies the customer name.
  e-mail-address: A customer name of up to 127 characters.
- **copy profile src-profile-name dest-profile-name**—Copies the content of an existing profile (**src-profile-name**) to a new profile (**dest-profile-name**).
  src-profile-name: An existing profile name of up to 23 characters.
  dest-profile-name: A new profile name of up to 23 characters.
- **rename profile src-profile-name dest-profile-name**—Changes the name of an existing profile.
  src-profile-name: An existing profile name of up to 23 characters.
  dest-profile-name: A new profile name of up to 23 characters.
- **no configuration all**—Clears the Smart Call-home configuration.
  [**no**] **customer-id customer-id-string**—Specifies the customer ID.
  customer-id-string: A customer ID of up to 64 characters. This field is required for XML format messages.

- [**no**] **event-queue-size queue_size**—Specifies the event queue size.
  queue-size: The number of events from 5-60. The default is 10.
- [**no**] **mail-server ip-address | name priority 1-100 all**—Specifies the SMTP mail server. Customers can specify up to five mail servers. At least one mail server is required for using e-mail transport for Smart Call Home messages.
  ip-address: The IPv4 or IPv6 address of the mail server.
  name: The hostname of the mail server.
  1-100: The priority of the mail server. The lower the number, the higher the priority.
- [**no**] **phone-number phone-number-string**—Specifies the customer phone number. This field is optional.
  phone-number-string: The phone number.
- [**no**] **rate-limit msg-count**—Specifies the number of messages that Smart Call Home can send per minute.
  msg-count: The number of messages per minute. The default is 10.
- [**no**] **sender** {**from e-mail-address | reply-to e-mail-address**} —Specifies the from/reply-to e-mail address of an e-mail message. This field is optional.
  e-mail-address: The from and reply-to e-mail address.
- [**no**] **site-id site-id-string**—Specifies the customer site ID. This field is optional.
  site-id-string: A site ID to identify the location of the customer.
- [**no**] **street-address street-address**—Specifies the customer address. This field is optional.
  street-address: A free-format string of up to 255 characters.
- [**no**] **alert-group-config environment**—Enters environment group configuration mode.
  [**no**] **threshold** {**cpu | memory**} **low-high**—Specifies the environmental resource threshold.
  low, high: Valid values are 0-100. The default is 85-90.
- [**no**] **alert-group-config snapshot**—Enters snapshot group configuration mode.
  system, user: To run the CLI in sysem or user context (available only in multimode).
- [**no**] **add-command "cli command"** [{**system | user**}] —Specifies CLI commands to capture in the snapshot group.
  cli command: The CLI command to be entered.
  system, user: To run the CLI in the system or in user context (available only in multiple mode). If both the system and user are not specified, the CLI will be run in both the system and user contexts. The default is the user context.
- [**no**] **profile profile-name | no profile all**—Creates, deletes, or edits a profile. Enters profile configuration mode and changes the prompt to hostname (cfg-call-home-profile)#.
  profile-name: A profile name of up to 20 characters.
- [**no**] **active**—Enables or disables a profile. The default is enabled.
  no destination address {**e-mail | http**} **all | [no] destination** {**address** {**e-mail | http**} **e-mail-address | http-url** [**msg-format short-text | long-text | xml**] **| message-size-limit max-size | preferred-msg-format short-text | long-text | xml | transport-method e-mail | http**}—Configures the destination, message size, message format, and transport method for the Smart Call Home message receiver. The default message format is XML, and the default enabled transport method is e-mail.
  e-mail-address: The e-mail address of the Smart Call Home receiver, which can be up to 100 characters.
  http-url: The HTTP or HTTPS URL.
  max-size: The maximum message size in bytes. 0 means no limit. The default is 5 MB.

- [**no**] **subscribe-to-alert-group alert-group-name** [**severity** {**catastrophic** | **disaster** | **emergencies** | **alert** | **critical** | **errors** | **warning** | **notifications** | **informational** | **debugging**}]—Subscribes to events of a group with a specified severity level.
  alert-group-name: Syslog, diagnostic, environment, or threat are valid values.
- [**no**] **subscribe-to-alert-group syslog** [{**severity** {**catastrophic** | **disaster** | **emergencies** | **alert** | **critical** | **errors** | **warning** | **notifications** | **informational** | **debugging**} | **message start** [**-end**]}]—Subscribes to syslogs with a severity level or message ID.
  start-[**end**]: One syslog message ID or a range of syslog message IDs.
- [**no**] **subscribe-to-alert-group inventory** [**periodic** {**daily** | **monthly day_of_month** | **weekly day_of_week** [**hh:mm**]]—Subscribes to inventory events.
  day_of_month: Day of the month, 1-31.
  day_of_week: Day of the week (Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday).
  hh, mm: Hours and minutes of a day, in 24-hour time.
- [**no**] **subscribe-to-alert-group configuration** [**export full** | **minimum**] [**periodic** {**daily** | **monthly day_of_month** | **weekly day_of_week** [**hh:mm**]]—Subscribes to configuration events.
  full: Configuration to export the running configuration, startup configurtion, feature list, number of elements in an access list, and the context name in multimode.
  minimum: Configuration to export-only feature list, number of elements in an access list, and the context name in multimode.
  day_of_month: Day of the month, 1-31.
  day_of_week: Day of the week (Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday).
  hh, mm: Hours and minutes of a day, in 24-hour time.
- [**no**] **subscribe-to-alert-group telemetry periodic** {**hourly** | **daily** | **monthly day_of_month** | **weekly day_of_week** [**hh:mm**]—Subscribes to telemetry periodic events.
  day_of_month: Day of the month, 1-31.
  day_of_week: Day of the week (Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday).
  hh, mm: Hours and minutes of a day, in 24-hour time.
- [**no**] **subscribe-to-alert-group snapshot periodic** {**interval minutes** | **hourly** [**mm**] | **daily** | **monthly day_of_month** |**weekly day_of_week** [**hh:mm**]}—Subscribes to snapshot periodic events.
  minutes: The interval in minutes.
  day_of_month: Day of the month, 1-31.
  day_of_week: Day of the week (Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday).
  hh, mm: Hours and minutes of a day, in 24-hour time.

Note Call-home HTTPS messages can only be sent over a specified source interface on the VRF using the **ip http client source-interface** command, independent of the **vrf** command described here.

Examples

The following example show how to configure contact information:

```
hostname(config)# call-home
hostname(cfg-call-home)# contact-e-mail-addr username@example.com
hostname(cfg-call-home)# customer-id Customer1234
hostname(cfg-call-home)# phone-number +1-800-555-0199
hostname(cfg-call-home)# site-id Site1
hostname(cfg-call-home)# street-address "1234 Any Street, Any city, Any state, 12345"
```

The following example shows how to configure the Call Home message rate-limit threshold:

```
hostname(config)# call-home
hostname(cfg-call-home)# rate-limit 50
```

The following example shows how to set the Call Home message rate-limit threshold to the default setting:

```
hostname(config)# call-home
hostname(cfg-call-home)# default rate-limit
```

The following example shows how to create a new destination profile with the same configuration settings as an existing profile:

```
hostname(config)# call-home
hostname(cfg-call-home)# copy profile profile1 profile1a
```

The following example shows how to configure the general e-mail parameters, including a primary and secondary e-mail server:

```
hostname(config)# call-home
hostname(cfg-call-home)# mail-server smtp.example.com priority 1
hostname(cfg-call-home)# mail-server 192.168.0.1 priority 2
hostname(cfg-call-home)# sender from username@example.com
hostname(cfg-call-home)# sender reply-to username@example.com
```

Related Commands

Command	Description
alert-group	Enables an alert group.
profile	Enters call-home profile configuration mode.
show call-home	Displays Call Home configuration information.

call-home send

To execute a CLI command and e-mail the command output to a specified address, use the **call-home send** command in privileged EXEC mode.

call-home send cli command [**email** *email*] [**service-number** *service number*]

Syntax Description

cli-command	Specifies the CLI command to be executed. The command output is sent by e-mail.
email *email*	Specifies the e-mail address to which the CLI command output is sent. If no e-mail address is specified, the command output is sent to the Cisco TAC at attach@cisco.com.
service-number *service number*	Specifies an active TAC case number to which the command output pertains. This number is required only if no e-mail address (or a TAC e-mail address) is specified, and will appear in the e-mail subject line.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
8.2(2)	This command was introduced.

Usage Guidelines

This command causes the specified CLI command to be executed on the system. The specified CLI command must be enclosed in quotes (“”), and can be any **run** or **show** command, including commands for all modules.

The command output is then sent by e-mail to the specified e-mail address. If no e-mail address is specified, the command output is sent to the Cisco TAC at attach@cisco.com. The e-mail is sent in long text format with the service number, if specified, in the subject line.

Examples

The following example shows how to send a CLI command and have the command output e-mailed:

```
hostname# call-home send "show diagnostic result module all" email support@example.com
```

Related Commands

call-home	Enters call home configuration mode.
call-home test	Sends a Call Home test message that you define.

service call-home	Enables or disables Call Home.
show call-home	Displays call-home configuration information.

call-home send alert-group

To send a specific alert group message, use the **call-home send alert-group** command in privileged EXEC mode.

call-home send alert-group {**configuration** | **telemetry** | **inventory** | **group snapshot**} [**profile** *profile-name*]

Syntax Description

configuration	Sends the configuration alert-group message to the destination profile.
group snapshot	Sends the snapshot group.
inventory	Sends the inventory call-home message.
profile *profile-name*	(Optional) Specifies the name of the destination profile.
telemetry	Sends the diagnostic alert-group message to the destination profile for a specific module, slot/subslot, or slot/bay number.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
8.2(2)	This command was introduced.

Usage Guidelines

If you do not specify the **profile** *profile-name*, the message is sent to all subscribed destination profiles.

Only the configuration, diagnostic, and inventory alert groups can be manually sent. The destination profile need not be subscribed to the alert group.

Examples

The following example shows how to send the configuration alert-group message to the destination profile:

```
hostname# call-home send alert-group configuration
```

The following example shows how to send the diagnostic alert-group message to the destination profile for a specific module, slot/subslot, or slot/bay number:

```
hostname# call-home send alert-group diagnostic module 3 5/2
```

The following example shows how to send the diagnostic alert-group message to all destination profiles for a specific module, slot/subslot, or slot/bay number:

```
hostname# call-home send alert-group diagnostic module 3 5/2 profile Ciscotac1
```

This example shows how to send the inventory call-home message:

```
hostname# call-home send alert-group inventory
```

Related Commands

call-home	Enters call home configuration mode.
call-home test	Sends a Call Home test message that you define.
service call-home	Enables or disables Call Home.
show call-home	Displays call-home configuration information.

call-home test

To manually send a Call Home test message using the configuration of a profile, use the **call-home test** command in privileged EXEC mode.

call-home test [“*test-message*”] **profile** *profile-name*

Syntax Description

profile *profile-name*	Specifies the name of the destination profile.
“*test-message*”	(Optional) Test message text.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
8.2(2)	This command was introduced.

Usage Guidelines

This command sends a test message to the specified destination profile. If you enter test message text, you must enclose the text in quotes (“”) if it contains spaces. If you do not enter a message, a default message is sent.

Examples

The following example shows how to manually send a Call Home test message:

```
hostname# call-home test “test of the day” profile Ciscotac1
```

Related Commands

call-home	Enters call home configuration mode.
call-home send alert-group	Sends a specific alert group message.
service call-home	Enables or disables Call Home.
show call-home	Displays Call Home configuration information.

capture

To enable packet capture capabilities for packet sniffing and network fault isolation, use the **capture** command in privileged EXEC mode. To disable packet capture capabilities, use the **no** form of this command.

[**cluster exec**] **capture** *capture_name* [**type** {**asp-drop all** [*drop-code*] | **tls-proxy** | **raw-data** | **lacp** | **isakmp** [**ikev1** | **ikev2**] | **webvpn user** *webvpn-user*}] [**access-list** *access_list_name*] [**interface asa_dataplane**] [**buffer** *buf_size*] [**ethernet-type** *type*] [**interface** *interface_name*] [**reinject-hide**] [**packet-length** *bytes*] [**circular-buffer**] [**trace** *trace_count*] [**real-time**] [**trace**] [**match** *prot* {**host** *source-ip* | *source-ip mask* | **any**}{**host** *destination-ip* | *destination-ip mask* | **any**} [*operator* **port**]

[**cluster exec**] **no capture** *capture_name* [**type** {**asp-drop all** [*drop-code*] | **tls-proxy** | **raw-data** | **lacp** | **isakmp** [**ikev1** | **ikev2**] | **webvpn user** *webvpn-user*}] [**access-list** *access_list_name*] [**asa_dataplane**] [**buffer** *buf_size*] [**ethernet-type** *type*] [**interface** *interface_name*] [**reinject-hide**] [**packet-length** *bytes*] [**circular-buffer**] [**trace** *trace_count*] [**real-time**] [**trace**] [**match** *prot* {**host** *source-ip* | *source-ip mask* | **any**}{**host** *destination-ip* | *destination-ip mask* | **any**} [*operator* **port**]

Syntax Description

access-list *access_list_name*	(Optional) Captures traffic that matches an access list. In multiple context mode, this is only available within a context.
any	Specifies any IP address instead of a single IP address and mask.
all	Captures all the packets that the ASA drops
asa_dataplane	Captures packets on the ASA backplane that pass between the ASA and the ASA CX module.
asp-drop *drop-code*	(Optional) Captures packets dropped by the accelerated security path. The *drop-code* specifies the type of traffic that is dropped by the accelerated security path. See the **show asp drop frame** command for a list of drop codes. If you do not enter the *drop-code* argument, then all dropped packets are captured. You can enter this keyword with the **packet-length**, **circular-buffer**, and **buffer** keywords, but not with the **interface** or **ethernet-type** keyword. In a cluster, dropped forwarded data packets from one unit to another are also captured. In multiple context mode, when this option is issued in system context, all dropped data packets are captured; when this option is issued in a user context, only dropped data packets that enter from interfaces belonging to the user context are captured.
buffer *buf_size*	(Optional) Defines the buffer size used to store the packet in bytes. Once the byte buffer is full, packet capture stops. When used in a cluster, this is the per-unit size, not the sum of all units.
capture_name	Specifies the name of the packet capture. Use the same name on multiple **capture** statements to capture multiple types of traffic. When you view the capture configuration using the **show capture** command, all options are combined on one line.
circular-buffer	(Optional) Overwrites the buffer, starting from the beginning, when the buffer is full.
cluster exec	(Optional) Used only in a clustering deployment as a wrapper CLI prefix and can be used with the **capture** and **show capture** commands. Enables you to issue the **capture** command in one unit and run the command in all the other units at the same time.

ethernet-type *type*	(Optional) Selects an Ethernet type to capture. Supported Ethernet types include 8021Q, ARP, IP, IP6, IPX, LACP, PPPOED, PPPOES, RARP, and VLAN. An exception occurs with the 802.1Q or VLAN type. The 802.1Q tag is automatically skipped and the inner Ethernet type is used for matching.
host *ip*	Specifies the single IP address of the host to which the packet is being sent.
interface *interface_name*	Sets the name of the interface on which to use packet capture. You must configure an interface for any packets to be captured. You can configure multiple interfaces using multiple **capture** commands with the same name. To capture packets on the dataplane of an ASA, you can use the **interface** keyword with “asa_dataplane” as the interface name.You can specify “cluster” as the interface name to capture the traffic on the cluster control link interface. The interface names "cluster" and "asa-dataplane" are fixed and not configurable. If the type **lacp** capture is configured, the interface name is the physical name.
ikev1/ikev2	Captures only IKEv1 or IKEv2 protocol information.
isakmp	(Optional) Captures ISAKMP traffic for VPN connections. The ISAKMP subsystem does not have access to the upper layer protocols. The capture is a pseudo capture, with the physical, IP, and UDP layers combined together to satisfy a PCAP parser. The peer addresses are obtained from the SA exchange and are stored in the IP layer.
lacp	(Optional) Captures LACP traffic. If configured, the interface name is the physical interface name. The **trace**, **match**, and **access-list** keywords cannot be used together with the **lacp** keyword.
mask	The subnet mask for the IP address. When you specify a network mask, the method is different from the Cisco IOS software **access-list** command. The ASA uses a network mask (for example, 255.255.255.0 for a Class C mask). The Cisco IOS mask uses wildcard bits (for example, 0.0.0.255).
match *prot*	Specifies the packets that match the five-tuple to allow filtering of those packets to be captured. You can use this keyword up to three times on one line.
operator	(Optional) Matches the port numbers used by the source or destination. The permitted operators are as follows: • **lt—**less than • **gt—**greater than • **eq—**equal to • **neq**—not equal to • **range**—range
packet-length *bytes*	(Optional) Sets the maximum number of bytes of each packet to store in the capture buffer.
port	(Optional) If you set the protocol to **tcp** or **udp**, specifies the integer or name of a TCP or UDP port.
raw-data	(Optional) Captures inbound and outbound packets on one or more interfaces.
real-time	Displays the captured packets continuously in real-time. To terminate real-time packet capture, enter **Ctrl + c.** To permanently remove the capture, use the **no** form of this command. This option applies only to **raw-data** and **asp-drop** captures. This option is not supported when you use the **cluster exec capture** command.
reinject-hide	(Optional) Specifies that no reinjected packets will be captured. Applies only in a clustering environment.

tls-proxy	(Optional) Captures decrypted inbound and outbound data from TLS proxy on one or more interfaces.
trace *trace_count*	(Optional) Captures packet trace information, and the number of packets to capture. This option is used with an access list to insert trace packets into the data path to determine whether or not the packet has been processed as expected.
type	(Optional) Specifies the type of data captured.
user *webvpn-user*	(Optional) Specifies a username for a WebVPN capture.
webvpn	(Optional) Captures WebVPN data for a specific WebVPN connection.

Defaults

The defaults are as follows:

- The default **type** is **raw-data**.
- The default **buffer** *size* is 512 KB.
- The default Ethernet type is IP packets.
- The default **packet-length** is 1518 bytes.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
6.2(1)	This command was introduced.
7.0(1)	This command was modified to include the following keywords: **type asp-drop**, **type isakmp**, **type raw-data**, and **type webvpn**.
7.0(8)	Added the **all** option to capture all packets that the ASA drops**.**
7.2(1)	This command was modified to include the following options: **trace** *trace_count,* **match** *prot,* **real-time, host** *ip,* **any**, *mask,* and *operator.*
8.0(2)	This command was modified to update the path to capture contents.
8.4(1)	The new **type** keywords **ikev1** and **ikev2** were added.
8.4(2)	Additional detail was added to the output for IDS.
8.4(4.1)	The **asa_dataplane** option was added to support traffic over the backplane to the ASA CX module.
9.0(1)	The **cluster, cluster exec,** and **reinject-hide** keywords were added. The new **type** option **lacp** was added. Support for multiple-context mode was added for ISAKMP.
9.1(3)	Supports filtering of packets captured on the ASA CX backplane with the **asa_dataplane** option.

Usage Guidelines

Capturing packets is useful when troubleshooting connectivity problems or monitoring suspicious activity. You can create multiple captures. To view the packet capture, use the **show capture** *name* command. To save the capture to a file, use the **copy capture** command. Use the **https://***ASA-ip-address***/***admin***/capture/***capture_name*[**/pcap**] command to see the packet capture information with a web browser. If you specify the **pcap** optional keyword, then a libpcap-format file is downloaded to the web browser and can be saved using the web browser. (A libcap file can be viewed with TCPDUMP or Ethereal.)

If you copy the buffer contents to a TFTP server in ASCII format, you will see only the headers, not the details and hexadecimal dump of the packets. To see the details and hexadecimal dump, you need to transfer the buffer in PCAP format and read it with TCPDUMP or Ethereal.

Note Enabling WebVPN capture affects the performance of the ASA. Be sure to disable the capture after you generate the capture files that you need for troubleshooting.

Entering **no capture** without optional keywords deletes the capture. If the **access-list** optional keyword is specified, the access list is removed from the capture and the capture is preserved. If the **interface** keyword is specified, the capture is detached from the specified interface and the capture is preserved. Enter the **no capture** command with either the **access-list** or **interface** optional keyword unless you want to clear the capture itself.

You cannot perform any operations on a capture while the real-time display is in progress. Using the **real-time** keyword with a slow console connection may result in an excessive number of non-displayed packets because of performance considerations. The fixed limit of the buffer is 1000 packets. If the buffer fills up, a counter is maintained of the captured packets. If you open another session, you can disable the real-time display be entering the **no capture real-time** command.

Note The **capture** command is not saved to the running configuration, and is not copied to the standby unit during failover.

The ASA is capable of tracking all IP traffic that flows across it and of capturing all the IP traffic that is destined to it, including all the management traffic (such as SSH and Telnet traffic).

The ASA architecture consists of three different sets of processors for packet processing; this architecture poses certain restrictions on the capability of the capture feature. Typically most of the packet forwarding functionality in the ASA is handled by the two front-end network processors, and packets are sent to the control-plane general-purpose processor only if they need application inspection. The packets are sent to the session management path network processor only if there is a session miss in the accelerated path processor.

Because all the packets that are forwarded or dropped by the ASA hits the two front-end network processors, the packet capture feature is implemented in these network processors. So all the packets that hit the ASA can be captured by these front end processors, if an appropriate capture is configured for those traffic interfaces. On the ingress side, the packets are captured the moment the packet hits the ASA interfaces, and on the egress side the packets are captured just before they are sent out on the wire.

After you have performed cluster-wide capture, to copy the same capture file from all units in the cluster at the same time to a TFTP server, enter the following command on the master unit:

```
hostname# cluster exec copy /pcap capture: cap_name tftp://location/path/filename.pcap
```

Multiple PCAP files, one from each unit, are copied to the TFTP server. The destination capture file name is automatically attached with the unit name, such as filename_A.pcap, filename_B.pcap, and so on. In this example, A and B are cluster unit names.

Note A different destination name is generated if you add the unit name at the end of the filename.

The following are some of the limitations of the capture feature. Most of the limitations are caused by the distributed nature of the ASA architecture and by the hardware accelerators that are being used in the ASA.

- You can only capture IP traffic; you cannot capture non-IP packets such as ARPs.
- For cluster control link capture in multiple context mode, only the packet that is associated with the context sent in the cluster control link is captured.
- In multicontext mode, the **copy capture** command is available only in the system space. The syntax is as follows:

  copy /pcap capture:*Context-name*/*in-cap* **tftp**:

  Where *in-cap* is the capture configured in the context *context-name*
- The **cluster exec capture realtime** command is not supported. The following error message appears:

  ```
  Error: Real-time capture can not be run in cluster exec mode.
  ```
- For a shared VLAN, the following guidelines apply:
  - You can only configure one capture for the VLAN; if you configure a capture in multiple contexts on the shared VLAN, then only the last capture that was configured is used.
  - If you remove the last-configured (active) capture, no captures become active, even if you have previously configured a capture in another context; you must remove and readd the capture to make it active.
  - All traffic that enters the interface to which the capture is attached (and that matches the capture access list) is captured, including traffic to other contexts on the shared VLAN.
  - Therefore, if you enable a capture in Context A for a VLAN that is also used by Context B, both Context A and Context B ingress traffic are captured.
- For egress traffic, only the traffic of the context with the active capture is captured. The only exception is when you do not enable the ICMP inspection (therefore the ICMP traffic does not have a session in the accelerated path). In this case, both ingress and egress ICMP traffic for all contexts on the shared VLAN is captured.
- Configuring a capture typically involves configuring an access list that matches the traffic that needs to be captured. After an access list that matches the traffic pattern is configured, then you need to define a capture and associate this access list to the capture, along with the interface on which the capture needs to be configured. Note that a capture only works if an access list and an interface are associated with a capture for capturing IPv4 traffic. The access list is not required for IPv6 traffic.
- For the ASA CX module traffic, captured packets contain an additional AFBP header that your PCAP viewer might not understand; be sure to use the appropriate plugin to view these packets.
- If there is no ingress interface and therefore no global interface, packets sent on the ASA CX backplane are treated as control packets in the system context. These packets bypass the access list check and are always captured. This behavior applies in both single mode and multiple context mode.

Examples

To capture a packet, enter the following command:

```
hostname# capture captest interface inside
```

```
hostname# capture captest interface outside
```

On a web browser, you can view the content of the **capture** command that was issued, named "captest," at the following location:

```
https://171.69.38.95/admin/capture/captest
```

To download a libpcap file (that web browsers use) to a local machine, enter the following command:

```
https://171.69.38.95/capture/http/pcap
```

The following example shows that the traffic is captured from an outside host at 171.71.69.234 to an inside HTTP server:

```
hostname# access-list http permit tcp host 10.120.56.15 eq http host 171.71.69.234
hostname# access-list http permit tcp host 171.71.69.234 host 10.120.56.15 eq http
hostname# capture http access-list http packet-length 74 interface inside
```

The following example shows how to capture ARP packets:

```
hostname# capture arp ethernet-type arp interface outside
```

The following example inserts five tracer packets into the data stream, where *access-list 101* defines traffic that matches TCP protocol FTP:

```
hostname# capture ftptrace interface outside access-list 101 trace 5
```

To view the traced packets and information about packet processing in an easily readable manner, use the **show capture ftptrace** command.

The following example shows how to display captured packets in real-time:

```
hostname# capture test interface outside real-time
Warning: Using this option with a slow console connection may result in an excess amount
of non-displayed packets due to performance limitations.
Use ctrl-c to terminate real-time capture.

10 packets displayed
12 packets not displayed due to performance limitations
```

The following example shows how to configure an extended access list that matches the IPv4 traffic that needs to be captured:

```
hostname (config)# access-list capture extended permit ip any any
```

The following examples shows how to configure the capture:

```
hostname (config)# capture name access-list acl_name interface interface_name
```

By default, configuring a capture creates a linear capture buffer of size 512 KB. You can optionally configure a circular buffer. By default, only 68 bytes of the packets are captured in the buffer. You can optionally change this value.

The following example creates a capture called "ip-capture" using the capture access list previously configured that is applied to the outside interface:

```
hostname (config)# capture ip-capture access-list capture interface outside
```

The following example shows how to view the capture:

```
hostname (config)# show capture name
```

The following example shows how to end the capture, but retain the buffer:

```
hostname (config)# no capture name access-list acl_name interface interface_name
```

The following example shows how to end the capture and delete the buffer:

```
hostname (config)# no capture name
```

The following example shows how to filter traffic captured on the ASA CX backplane in single mode:

```
hostname# capture x interface asa_dataplane access-list any4
hostname# capture y interface asa_dataplane match ip any any
```

Note Control packets are captured in the single mode even though you have specified the access list.

The following examples show how to filter traffic captured on the ASA CX backplane in multiple context mode:

Usage in user context:

```
hostname (contextA)# capture x interface asa_dataplane access-list any4
hostname (contextA)# capture y interface asa_dataplane match ip any any
```

Usage in system context:

```
hostname# capture z interface asa_dataplane
```

Note In multiple context mode, the **access-list** and **match** options are not available in the system context.

Capture for Clustering

To enable capture on all units in the cluster, you can add the **cluster exec** keywords in front of each of these commands.

The following example shows how to create an LACP capture for the clustering environment:

```
hostname (config)# capture lacp type lacp interface gigabitEthernet0/0
```

The following example shows how to create a capture for control path packets in the clustering link:

```
hostname (config)# cap cp interface cluster match udp any eq 49495 any
hostname (config)# cap cp interface cluster match udp any any eq 49495
```

The following example shows how to create a capture for data path packets in the clustering link:

```
hostname (config)# access-list cc1 extended permit udp any any eq 4193
hostname (config)# access-list cc1 extended permit udp any eq 4193 any
hostname (config)# capture dp interface cluster access-list ccl
```

The following example shows how to capture data path traffic through the cluster:

```
hostname (config)# capture abc interface inside match tcp host 1.1.1.1 host 2.2.2.2 eq www
hostname (config)# capture abc interface inside match dup host 1.1.1.1 any
hostname (config)# capture abc interface inside access-list xxx
```

The following example shows how to capture logical update messages for flows that match the real source to the real destination, and capture packets forwarded over CCL that match the real source to the real destination:

```
hostname (config)# access-list dp permit real src real dst
```

The following example shows how to capture a certain type of data plane message, such as icmp echo request/response, that is forwarded from one ASA to another ASA using the **match** keyword or the access list for the message type:

```
hostname (config)# capture capture_name interface cluster access-list match icmp any any
```

The following example shows how to create a capture by using access list 103 on a cluster control link in a clustering environment:

```
hostname (config)# access-list 103 permit ip A B
hostname (config)# capture example1 interface cluster
```

In the previous example, if A and B are IP addresses for the CCL interface, only the packets that are sent between these two units are captured.

If A and B are IP addresses for through-device traffic, then the following is true:

- Forwarded packets are captured as usual, provided the source and destination IP addresses are matched with the access list.
- The data path logic update message is captured provided it is for the flow between A and B or for an access list (for example, access-list 103). The capture matches the five-tuple of the embedded flow.
- Although the source and destination addresses in the UDP packet are CCL addresses, if this packet is to update a flow that is associated with addresses A and B, it is also captured. That is, as long as addresses A and B that are embedded in the packet are matched, it is also captured.

Related Commands

Command	Description
clear capture	Clears the capture buffer.
copy capture	Copies a capture file to a server.
show capture	Displays the capture configuration when no options are specified.

cd

To change the current working directory to the one specified, use the **cd** command in privileged EXEC mode.

cd [**disk0: | disk1: | flash:**] [*path*]

Syntax Description

disk0:	Specifies the internal flash memory, followed by a colon.
disk1:	Specifies the removable, external flash memory card, followed by a colon.
flash:	Specifies the internal flash memory, followed by a colon. In the ASA 5500 series, the **flash** keyword is aliased to **disk0**.
path	(Optional) The absolute path of the directory to change to.

Defaults

If you do not specify a directory, the directory is changed to the root directory.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to change to the “config” directory:

```
hostname# cd flash:/config/
```

Related Commands

Command	Description
pwd	Displays the current working directory.

cdp-url

To specify the CDP to be included in certificates issued by the local CA, use the **cdp-url** command in ca server configuration mode. To revert to the default CDP, use the **no** form of this command.

[no] cdp-url *url*

Syntax Description

url	Specifies the URL where a validating party obtains revocation status for certificates issued by the local CA. The URL must be less than 500 alphanumeric characters.

Defaults

The default CDP URL is that of the ASA that includes the local CA. The default URL is in the format: http://hostname.domain/+CSCOCA+/asa_ca.crl.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ca server configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

The CDP is an extension that can be included in issued certificates to specify the location where a validating party can obtain revocation status for the certificate. Only one CDP can be configured at a time.

Note If a CDP URL is specified, it is the responsibility of the administrator to maintain access to the current CRL from that location.

Examples

The following example configures a CDP at 10.10.10.12 for certificates issued by the local CA server:

```
hostname(config)# crypto ca server
hostname(config-ca-server)# cdp-url http://10.10.10.12/ca/crl
hostname(config-ca-server)#
```

Related Commands

Command	Description
crypto ca server	Provides access to ca server configuration mode CLI command set, which allows you to configure and manage a local CA.
crypto ca server crl issue	Forces the issuance of a CRL.
crypto ca server revoke	Marks a certificate issued by a local CA server as revoked in the certificate database and CRL.
crypto ca server unrevoke	Unrevokes a previously revoked certificate issued by a local CA server.
lifetime crl	Specifies the lifetime of the certificate revocation list.

certificate

To add the indicated certificate, use the **certificate** command in crypto ca certificate chain configuration mode. To delete the certificate, use the **no** form of this command.

certificate [**ca** | **ra-encrypt** | **ra-sign** | **ra-general**] *certificate-serial-number*

no certificate *certificate-serial-number*

Syntax Description

ca	Indicates that the certificate is a CA issuing certificate.
certificate-serial-number	Specifies the serial number of the certificate in hexadecimal format ending with the word "quit."
ra-encrypt	Indicates that the certificate is an RA key encipherment certificate used in SCEP.
ra-general	Indicates that the certificate is an RA certificate used for digital signing and key encipherment in SCEP messaging.
ra-sign	Indicates that the certificate is an RA digital signature certificate used in SCEP messaging.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Crypto ca certificate chain configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

When this command is issued, the ASA interprets the data included with it as the certificate in hexadecimal format. A **quit** string indicates the end of the certificate.

A CA is an authority in a network that issues and manages security credentials and public key for message encryption. As part of a public key infrastructure, a CA checks with a RA to verify information provided by the requestor of a digital certificate. If the RA verifies the requestor information, the CA can then issue a certificate.

Examples

The following example adds a CA certificate with the serial number 29573D5FF010FE25B45:

```
hostname(config)# crypto ca trustpoint central
```

```
hostname(ca-trustpoint)# crypto ca certificate chain central
hostname(ca-cert-chain)# certificate ca 29573D5FF010FE25B45
  30820345 308202EF A0030201 02021029 572A3FF2 96EF854F D0D6732F E25B4530
  0D06092A 864886F7 0D010105 05003081 8F311630 1406092A 864886F7 0D010901
  16076140 622E636F 6D310B30 09060355 04061302 55533116 30140603 55040813
  0D6D6173 73616368 75736574 74733111 300F0603 55040713 08667261 6E6B6C69
  6E310E30 0C060355 040A1305 63697363 6F310F30 0D060355 040B1306 726F6F74
  6F75311C 301A0603 55040313 136D732D 726F6F74 2D736861 2D30362D 32303031
  301E170D 30313036 32363134 31313430 5A170D32 32303630 34313430 3133305A
  30818F31 16301406 092A8648 86F70D01 09011607 6140622E 636F6D31 0B300906
  03550406 13025553 31163014 06035504 08130D6D 61737361 63687573 65747473
  3111300F 06035504 07130866 72616E6B 6C696E31 0E300C06 0355040A 13056369
  73636F31 0F300D06 0355040B 1306726F 6F746F75 311C301A 06035504 0313136D
  732D726F 6F742D73 68612D30 362D3230 3031305C 300D0609 2A864886 F70D0101
  01050003 4B003048 024100AA 3EB9859B 8670A6FB 5E7D2223 5C11BCFE 48E6D3A8
  181643ED CF7E75EE E77D83DF 26E51876 97D8281E 9F58E4B0 353FDA41 29FC791B
  1E14219C 847D19F4 A51B7B02 03010001 A3820123 3082011F 300B0603 551D0F04
  04030201 C6300F06 03551D13 0101FF04 05300301 01FF301D 0603551D 0E041604
  14E0D412 3ACC96C2 FBF651F3 3F66C0CE A62AB63B 323081CD 0603551D 1F0481C5
  3081C230 3EA03CA0 3A86386C 6461703A 2F2F7732 6B616476 616E6365 64737276
  2F436572 74456E72 6F6C6C2F 6D732D72 6F6F742D 7368612D 30362D32 3030312E
  63726C30 3EA03CA0 3A863868 7474703A 2F2F7732 6B616476 616E6365 64737276
  2F436572 74456E72 6F6C6C2F 6D732D72 6F6F742D 7368612D 30362D32 3030312E
  63726C30 40A03EA0 3C863A66 696C653A 2F2F5C5C 77326B61 6476616E 63656473
  72765C43 65727445 6E726F6C 6C5C6D73 2D726F6F 742D7368 612D3036 2D323030
  312E6372 6C301006 092B0601 04018237 15010403 02010130 0D06092A 864886F7
  0D010105 05000341 0056221E 03F377B9 E6900BF7 BCB3568E ADBA146F 3B8A71F3
  DF9EB96C BB1873B2 B6268B7C 0229D8D0 FFB40433 C8B3CB41 0E4D212B 2AEECD77
  BEA3C1FE 5EE2AB6D 91
  quit
```

Related Commands

Command	Description
clear configure crypto map	Clears all configuration for all crypto maps.
show running-config crypto map	Displays the crypto map configuration.
crypto ca certificate chain	Enters certificate crypto ca certificate chain mode.
crypto ca trustpoint	Enters ca trustpoint mode.
show running-config crypto map	Displays all configuration for all the crypto maps.

certificate-group-map

To associate a rule entry from a certificate map with a tunnel group, use the **certificate-group-map** command in webvpn configuration mode. To clear current tunnel-group map associations, use the **no** form of this command.

certificate-group-map *certificate_map_name index tunnel_group_name*

no certificate-group-map

Syntax Description

certificate_map_name	The name of a certificate map.
index	The numeric identifier for a map entry in the certificate map. The index value can be in the range of 1-65535.
tunnel_group_name	The name of the tunnel group chosen if the map entry matches the certificate. The *tunnel-group name* must already exist.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

With the **certificate-group-map** command in effect, if a certificate received from a WebVPN client corresponds to a map entry, the resulting tunnel group is associated with the connection, overriding any tunnel group choice made by the user.

Multiple instances of the **certificate-group-map** command allow multiple mappings.

Examples

The following example shows how to associate rule 6 for a tunnel group named tgl:

```
hostname(config)# webvpn
hostname(config-webvpn)# certificate-group-map map1 6 tg1
hostname(config-webvpn)#
```

Related Commands

Command	Description
crypto ca certificate map	Enters ca certificate map configuration mode for configuring rules based on the certificate issuer and subject distinguished names (DNs).
tunnel-group-map	Configures the policy and rules by which certificate-based IKE sessions are mapped to tunnel groups.

chain

To enable sending a certificate chain, use the **chain** command in tunnel-group ipsec-attributes configuration mode. To return this command to the default, use the **no** form of this command.

chain

no chain

Syntax Description

This command has no arguments or keywords.

Defaults

The default setting for this command is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tunnel-group ipsec-attributes configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You can apply this attribute to all IPsec tunnel group types.

Entering this command includes the root certificate and any subordinate CA certificates in the transmission.

Examples

The following example entered in tunnel-group-ipsec attributes configuration mode, enables sending a chain for an IPSec LAN-to-LAN tunnel group with the IP address of 209.165.200.225, which includes the root certificate and any subordinate CA certificates:

```
hostname(config)# tunnel-group 209.165.200.225 type IPSec_L2L
hostname(config)# tunnel-group 209.165.200.225 ipsec-attributes
hostname(config-tunnel-ipsec)# chain
hostname(config-tunnel-ipsec)#
```

Related Commands

Command	Description
clear-configure tunnel-group	Clears all configured tunnel groups.
show running-config tunnel-group	Shows the current tunnel group configuration.
tunnel-group ipsec-attributes	Configures the tunnel-group ipsec-attributes for this group.

change-password

To enable users to change their own account passwords, use the **change-password** command in privileged EXEC mode.

change-password [**/silent**] [**old-password** *old-password* [**new-password** *new-password*]]

Syntax Description

new-password *new-password*	Specifies the new password.
old-password *old-password*	Reauthenticates the user.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	—	—	•
Global configuration	•	•	•	—	•

Command History

Release	Modification
8.4(4.1)	This command was introduced.

Usage Guidelines

If users omit the passwords, the ASA prompts them for input. When users enter the **change-password** command, they are asked to save their running configuration. After a user has successfully changed the password, a message appears to remind the user to save configuration changes.

Examples

The following example changes a user account password:

```
hostname# change-password old-password myoldpassword000 new password mynewpassword123
```

Related Commands

Command	Description
show run password-policy	Shows the password policy for the current context.
clear configure password-policy	Resets password policy for the current context to the default value.
clear configure username	Removes a username from a user account.

changeto

To change between security contexts and the system, use the **changeto** command in privileged EXEC mode.

changeto {**system** | **context** *name*}

Syntax Description

context *name*	Changes to the context with the specified name.
system	Changes to the system execution space.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	—	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

If you log into the system execution space or the admin context, you can change between contexts and perform configuration and monitoring tasks within each context. The "running" configuration that you edit in configuration mode, or that is used in the **copy** or **write** commands, depends on which execution space you are in. When you are in the system execution space, the running configuration consists only of the system configuration; when you are in a context execution space, the running configuration consists only of that context. For example, you cannot view all running configurations (system plus all contexts) by entering the **show running-config** command. Only the current configuration appears.

Examples

The following example changes between contexts and the system in privileged EXEC mode:

```
hostname/admin# changeto system
hostname# changeto context customerA
hostname/customerA#
```

The following example changes between the system and the admin context in interface configuration mode. When you change between execution spaces, and you are in a configuration mode, the mode changes to the global configuration mode in the new execution space.

```
hostname(config-if)# changeto context admin
hostname/admin(config)#
```

Related Commands

Command	Description
admin-context	Sets a context to be the admin context.
context	Creates a security context in the system configuration and enters context configuration mode.
show context	Shows a list of contexts (system execution space) or information about the current context.

channel-group

To assign a physical interface to an EtherChannel, use the **channel-group** command in interface configuration mode. To unassaign the interface, use the **no** form of this command.

channel-group *channel_id* **mode** {**active** | **passive** | **on**} [**vss-id** {**1** | **2**}]

no channel-group *channel_id*

Syntax Description

channel_id	Specifies the EtherChannel to which you want to assign this interface, between 1 and 48.
vss-id {**1** | **2**}	(Optional) With clustering, if you are connecting the ASA to two switches in a VSS or vPC, then configure the **vss-id** keyword to identify to which switch this interface is connected (1 or 2). You must also use the **port-channel span-cluster vss-load-balance** command for the port-channel interface.
mode {**active** | **passive** | **on**}	You can configure each physical interface in an EtherChannel to be: • Active—Sends and receives Link Aggregation Control Protocol (LACP) updates. An active EtherChannel can establish connectivity with either an active or a passive EtherChannel. You should use the active mode unless you need to minimize the amount of LACP traffic. • Passive—Receives LACP updates. A passive EtherChannel can only establish connectivity with an active EtherChannel. • On—The EtherChannel is always on, and LACP is not used. An “on” EtherChannel can only establish a connection with another “on” EtherChannel.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	—	•

Command History

Release	Modification
8.4(1)	We introduced this command.
9.0(1)	We added the **vss-id** keyword to support ASA clustering and spanned EtherChannels.

Usage Guidelines

Each channel group can have eight active interfaces. Note that you can assign up to 16 interfaces to a channel group. While only eight interfaces can be active, the remaining interfaces can act as standby links in case of interface failure.

All interfaces in the channel group must be the same type and speed. The first interface added to the channel group determines the correct type and speed.

If the port-channel interface for this channel ID does not yet exist in the configuration, one will be added:

interface port-channel *channel_id*

The Link Aggregation Control Protocol (LACP) aggregates interfaces by exchanging the Link Aggregation Control Protocol Data Units (LACPDUs) between two network devices. LACP coordinates the automatic addition and deletion of links to the EtherChannel without user intervention. It also handles misconfigurations and checks that both ends of member interfaces are connected to the correct channel group. "On" mode cannot use standby interfaces in the channel group when an interface goes down, and the connectivity and configurations are not checked.

ASA Clustering

You can include multiple interfaces per ASA in a spanned EtherChannel. Multiple interfaces per ASA are especially useful for connecting to both switches in a VSS or vPC. If you are connecting the ASA to two switches in a VSS or vPC, then you should enable VSS load balancing by using the **vss-load-balance** keyword. This feature ensures that the physical link connections between the ASAs to the VSS (or vPC) pair are balanced. You must configure the **vss-id** keyword in the **channel-group** command for each member interface before enabling load balancing.

Examples

The following example assigns interfaces to channel group 1:

```
hostname(config)# interface GigabitEthernet0/0
hostname(config-if)# channel-group 1 mode active
hostname(config-if)# interface GigabitEthernet0/1
hostname(config-if)# channel-group 1 mode active
hostname(config-if)# interface GigabitEthernet0/2
hostname(config-if)# channel-group 1 mode passive
```

Related Commands

Command	Description
interface port-channel	Configures an EtherChannel.
lacp max-bundle	Specifies the maximum number of active interfaces allowed in the channel group.
lacp port-priority	Sets the priority for a physical interface in the channel group.
lacp system-priority	Sets the LACP system priority.
port-channel load-balance	Configures the load-balancing algorithm.
port-channel min-bundle	Specifies the minimum number of active interfaces required for the port-channel interface to become active.
show lacp	Displays LACP information such as traffic statistics, system identifier and neighbor details.

Command	Description
show port-channel	Displays EtherChannel information in a detailed and one-line summary form. This command also displays the port and port-channel information.
show port-channel load-balance	Displays port-channel load-balance information along with the hash result and member interface selected for a given set of parameters.

character-encoding

To specify the global character encoding in WebVPN portal pages, use the **character-encoding** command in webvpn configuration mode. To remove the value of the character-encoding attribute, use the **no** form of this command.

character-encoding *charset*

no character-encoding *charset*

Syntax Description

charset	String consisting of up to 40 characters, and equal to one of the valid character sets identified in http://www.iana.org/assignments/character-sets. You can use either the name or the alias of a character set listed on that page. Examples include iso-8859-1, shift_jis, and ibm850. The string is case-insensitive. The command interpreter converts upper case to lower case in the ASA configuration.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

Character encoding, also called “character coding” and “a character set,” is the pairing of raw data (such as 0s and 1s) and characters to represent the data. The language determines the character encoding method to use. Some languages use the same method, while others do not. Usually, the geographic region determines the default encoding method used by the browser, but the user can change this. The browser can also detect the encoding specified on the page, and render the document accordingly. The character-encoding attribute lets the user specify the value of the character-encoding method into the WebVPN portal page to ensure that the browser renders it correctly, regardless of the region in which the user is using the browser, or any changes made to the browser.

The character-encoding attribute is a global setting that, by default, all WebVPN portal pages inherit. However, the user can override the file-encoding attribute for Common Internet File System (CIFS) servers that use character encoding that differs from the value of the character-encoding attribute. Use different file-encoding values for CIFS servers that require different character encodings.

The WebVPN portal pages downloaded from the CIFS server to the WebVPN user encode the value of the WebVPN file-encoding attribute identifying the server, or if one does not, they inherit the value of the character-encoding attribute. The remote user browser maps this value to an entry in its character encoding set to determine the proper character set to use. The WebVPN portal pages do not specify a value if WebVPN configuration does not specify a file-encoding entry for the CIFS server and the character-encoding attribute is not set. The remote browser uses its own default encoding if the WebVPN portal page does not specify the character encoding or if it specifies a character encoding value that the browser does not support.

The mapping of CIFS servers to their appropriate character encoding, globally with the webvpn character-encoding attribute, and individually with file-encoding overrides, provides for the accurate handling and display of CIFS pages when the correct rendering of file names or directory paths, as well as pages, is an issue.

Note The character-encoding and file-encoding values do not exclude the font family to be used by the browser. The user needs to complement the setting of one these values with the **page style** command in webvpn customization command mode to replace the font family if you are using Japanese Shift_JIS character encoding, as shown in the following example, or enter the **no page style** command in webvpn customization command mode to remove the font family.

The encoding type set on the remote browser determines the character set for WebVPN portal pages when this attribute does not have a value.

Examples

The following example sets the character-encoding attribute to support Japanese Shift_JIS characters, removes the font family, and retains the default background color:

```
hostname(config)# webvpn
hostname(config-webvpn)# character-encoding shift_jis
F1-asa1(config-webvpn)# customization DfltCustomization
F1-asa1(config-webvpn-custom)# page style background-color:white
F1-asa1(config-webvpn-custom)#
```

Related Commands

Command	Description
debug webvpn cifs	Displays debugging messages about the CIFS server.
file-encoding	Specifies CIFS servers and associated character encoding to override the value of this attribute.
show running-config [all] webvpn	Displays the running configuration for WebVPN. Use the **all** keyword to include the default configuration.

checkheaps

To configure checkheaps verification intervals, use the **checkheaps** command in global configuration mode. To set the value to the default, use the **no** form of this command.

checkheaps {check-interval | validate-checksum} *seconds*

no checkheaps {check-interval | validate-checksum} [*seconds*]

Syntax Description

check-interval	Sets the buffer verification interval. The buffer verification process checks the sanity of the heap (allocated and freed memory buffers). During each invocation of the process, the ASA checks the entire heap, validating each memory buffer. If there is a discrepancy, the ASA issues either an "allocated buffer error" or a "free buffer error." If there is an error, the ASA dumps traceback information when possible and reloads.
seconds	Sets the interval in seconds between 1 and 2147483.
validate-checksum	Sets the code space checksum validation interval. When the ASA first boots up, the ASA calculates a hash of the entire code. Later, during the periodic check, the ASA generates a new hash and compares it to the original. If there is a mismatch, the ASA issues a "text checksum checkheaps error." If there is an error, the ASA dumps traceback information when possible and reloads.

Defaults

The default intervals are 60 seconds each.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Checkheaps is a periodic process that verifies the sanity of the heap memory buffers (dynamic memory is allocated from the system heap memory region) and the integrity of the code region.

Examples

The following example sets the buffer allocation interval to 200 seconds and the code space checksum interval to 500 seconds:

```
hostname(config)# checkheaps check-interval 200
hostname(config)# checkheaps validate-checksum 500
```

Related Commands

Command	Description
show checkheaps	Shows checkheaps statistics.

check-retransmission

To prevent against TCP retransmission style attacks, use the **check-retransmission** command in tcp-map configuration mode. To remove this specification, use the **no** form of this command.

check-retransmission

no check-retransmission

Syntax Description

This command has no arguments or keywords.

Defaults

The default is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tcp-map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **tcp-map** command is used along with the Modular Policy Framework infrastructure. Define the class of traffic using the **class-map** command and customize the TCP inspection with **tcp-map** commands. Apply the new TCP map using the **policy-map** command. Activate TCP inspection with **service-policy** commands.

Use the **tcp-map** command to enter tcp-map configuration mode. To prevent against TCP retransmission style attacks that arise from end-system interpretation of inconsistent retransmissions, use the **check-retransmission** command in tcp-map configuration mode.

The ASA will make efforts to verify if the data in retransmits are the same as the original. If the data does not match, then the connection is dropped by the ASA. When this feature is enabled, packets on the TCP connection are only allowed in order. For more details, see the **queue-limit** command.

Examples

The following example enables the TCP check-retransmission feature on all TCP flows:

```
hostname(config)# access-list TCP extended permit tcp any any
hostname(config)# tcp-map tmap
hostname(config-tcp-map)# check-retransmission
hostname(config)# class-map cmap
hostname(config-cmap)# match access-list TCP
hostname(config)# policy-map pmap
hostname(config-pmap)# class cmap
```

```
hostname(config-pmap)# set connection advanced-options tmap
hostname(config)# service-policy pmap global
```

Related Commands

Command	Description
class	Specifies a class map to use for traffic classification.
help	Shows syntax help for the **policy-map**, **class**, and **description** commands.
policy-map	Configures a policy; that is, an association of a traffic class and one or more actions.
set connection	Configures connection values.
tcp-map	Creates a TCP map and allows access to tcp-map configuration mode.

checksum-verification

To enable or disable TCP checksum verification, use the **checksum-verification** command in tcp-map configuration mode. To remove this specification, use the **no** form of this command.

checksum-verification

no checksum-verification

Syntax Description

This command has no arguments or keywords.

Defaults

Checksum verification is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tcp-map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **tcp-map** command is used along with the Modular Policy Framework infrastructure. Define the class of traffic using the **class-map** command and customize the TCP inspection with **tcp-map** commands. Apply the new TCP map using the **policy-map** command. Activate TCP inspection with **service-policy** commands.

Use the **tcp-map** command to enter tcp-map configuration mode. Use the **checksum-verification** command in tcp-map configuration mode to enable TCP checksum verification. If the check fails, the packet is dropped.

Examples

The following example enables TCP checksum verification on TCP connections from 10.0.0.0 to 20.0.0.0:

```
hostname(config)# access-list TCP1 extended permit tcp 10.0.0.0 255.0.0.0 20.0.0.0
255.0.0.0
hostname(config)# tcp-map tmap
hostname(config-tcp-map)# checksum-verification

hostname(config)# class-map cmap
hostname(config-cmap)# match access-list TCP1

hostname(config)# policy-map pmap
hostname(config-pmap)# class cmap
```

```
hostname(config-pmap)# set connection advanced-options tmap

hostname(config)# service-policy pmap global
```

Related Commands

Command	Description
class	Specifies a class map to use for traffic classification.
help	Shows syntax help for the **policy-map**, **class**, and **description** commands.
policy-map	Configures a policy; that is, an association of a traffic class and one or more actions.
set connection	Configures connection values.
tcp-map	Creates a TCP map and allows access to tcp-map configuration mode.

cipc security-mode authenticated

To force Cisco IP Communicator (CIPC) softphones to operate in authenticated mode when CIPC softphones are deployed in a voice and data VLAN scenario, use the **cipc security-mode authenticated** command in phone-proxy configuration mode. To turn off this command when CIPC softphones support encryption, use the **no** form of this command.

cipc security-mode authenticated

no cipc security-mode authenticated

Syntax Description

This command has no arguments or keywords.

Defaults

Be default, this command is disabled via the no form of the command.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Phone-proxy configuration	•	—	•	—	—

Command History

Release	Modification
8.0(4)	The command was introduced.

Usage Guidelines

Separating voice and data traffic by using VLANs is a security best practice to hide voice streams from security threats that attempt to penetrate the data VLAN. However, Cisco IP Communicator (CIPC) softphone applications must connect to their respective IP phones, which reside on the voice VLAN. This requirement makes segregating voice and data VLANs an issue because the SIP and SCCP protocols dynamically negotiate the RTP/RTCP ports on a wide range of ports. This dynamic negotiation requires that a range of ports be open between the two VLANs.

Note Earlier versions of CIPC that do not support Authenticated mode are not supported with the Phone Proxy.

To allow CIPC softphones on the data VLAN to connect to their respective IP phones on the voice VLAN without requiring access between the VLANs on a wide range of ports, you can configure the Phone Proxy with the **cipc security-mode authenticated** command.

This command allows the Phone Proxy to look for CIPC configuration files and force CIPC softphones to be in authenticated mode rather than encrypted mode, because current versions of CIPC do not support encrypted mode.

When this command is enabled, the Phone Proxy parses the phones configuration file to determine if the phone is a CIPC softphone and changes the security mode to authenticated. Additionally, CIPC softphones support authenticated mode only while the Phone Proxy, by default, forces all phones to be in encrypted mode.

Examples

The following example shows the use of the **cipc security-mode authenticated** command to force Cisco IP Communicator (CIPC) softphones to operate in authenticated mode when CIPC softphones are deployed in a voice and data VLAN scenario:

```
hostname(config)# phone-proxy asa_phone_proxy
hostname(config-phone-proxy)#cipc security-mode authenticated
```

Related Commands

Command	Description
phone-proxy	Configures the Phone Proxy instance.

clacp system-mac

To manually configure the cLACP system ID on the master unit in an ASA cluster, use the **clacp system-mac** command in cluster group configuration mode. To retsore the default setting, use the **no** form of this command.

clacp system-mac {*mac_address* | **auto**} [**system-priority** *number*]

no clacp system-mac {*mac_address* | **auto**} [**system-priority** *number*]

Syntax Description

mac_address	Manually sets the system ID in the form *H.H.H*, where H is a 16-bit hexadecimal digit. For example, the MAC address 00-0A-00-00-AA-AA is entered as 000A.0000.AAAA.
auto	Auto-generates the system ID.
system-priority *number*	Sets the system priority, between 1 and 65535. The priority is used to decide which unit is in charge of making a bundling decision. By default, the ASA uses priority 1, which is the highest priority. The priority needs to be higher than the priority on the switch.

Command Default

By default, the system-mac is auto-generated (**auto**).

By default, the system-priority is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Cluster group configuration	•	•	•	—	•

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

When using spanned EtherChannels, the ASA uses cLACP to negotiate the EtherChannel with the neighbor switch. ASAs in a cluster collaborate in cLACP negotiation so that they appear as a single (virtual) device to the switch. One parameter in cLACP negotiation is a system ID, which is in the format of a MAC address. All ASAs use the same system ID: auto-generated by the master unit (the default) and replicated to all slaves; or manually specified in this command. You might want to manually configure the MAC address for troubleshooting purposes, for example, so you can use an easily identified MAC address. Typically, you would use the auto-generated MAC address.

This command is not part of the bootstrap configuration, and is replicated from the master unit to the slave units. However, you cannot change this value after you enable clustering.

Examples

The following example manually configures a system ID:

```
cluster group pod1
    local-unit unit1
    cluster-interface port-channel1 ip 192.168.1.1 255.255.255.0
    priority 1
    key chuntheunavoidable
    health-check
    clacp system-mac 000a.0000.aaaa
    enable noconfirm
```

Related Commands

Command	Description
cluster group	Configures cluster parameters.

class (global)

To create a resource class to which to assign a security context, use the **class** command in global configuration mode. To remove a class, use the **no** form of this command.

class *name*

no class *name*

Syntax Description

name	Specifies the name as a string up to 20 characters long. To set the limits for the default class, enter **default** for the name.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	—	—	•

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

By default, all security contexts have unlimited access to the resources of the ASA, except where maximum limits per context are enforced. However, if you find that one or more contexts use too many resources, and they cause other contexts to be denied connections, for example, then you can configure resource management to limit the use of resources per context.

The ASA manages resources by assigning contexts to resource classes. Each context uses the resource limits set by the class.

When you create a class, the ASA does not set aside a portion of the resources for each context assigned to the class; rather, the ASA sets the maximum limit for a context. If you oversubscribe resources, or allow some resources to be unlimited, a few contexts can "use up" those resources, potentially affecting service to other contexts. See the **limit-resource** command to set the resources for the class.

All contexts belong to the default class if they are not assigned to another class; you do not have to actively assign a context to the default class.

If a context belongs to a class other than the default class, those class settings always override the default class settings. However, if the other class has any settings that are not defined, then the member context uses the default class for those limits. For example, if you create a class with a 2 percent limit for all concurrent connections, but no other limits, then all other limits are inherited from the default class. Conversely, if you create a class with limits for all resources, the class uses no settings from the default class.

By default, the default class provides unlimited access to resources for all contexts, except for the following limits, which are by default set to the maximum allowed per context:

- Telnet sessions—5 sessions.
- SSH sessions—5 sessions.
- MAC addresses—65,535 entries.

Examples

The following example sets the default class limit for conns to 10 percent instead of unlimited:

```
hostname(config)# class default
hostname(config-class)# limit-resource conns 10%
```

All other resources remain at unlimited.

To add a class called gold, enter the following commands:

```
hostname(config)# class gold
hostname(config-class)# limit-resource mac-addresses 10000
hostname(config-class)# limit-resource conns 15%
hostname(config-class)# limit-resource rate conns 1000
hostname(config-class)# limit-resource rate inspects 500
hostname(config-class)# limit-resource hosts 9000
hostname(config-class)# limit-resource asdm 5
hostname(config-class)# limit-resource ssh 5
hostname(config-class)# limit-resource rate syslogs 5000
hostname(config-class)# limit-resource telnet 5
hostname(config-class)# limit-resource xlates 36000
hostname(config-class)# limit-resource routes 5000
```

Related Commands

Command	Description
clear configure class	Clears the class configuration.
context	Configures a security context.
limit-resource	Sets the resource limit for a class.
member	Assigns a context to a resource class.
show class	Shows the contexts assigned to a class.

class (policy-map)

To assign a class map to a policy map where you can assign actions to the class map traffic, use the **class** command in policy-map configuration mode. To remove a class map from a policy map, use the **no** form of this command.

class *classmap_name*

no class *classmap_name*

Syntax Description

classmap_name	Specifies the name for the class map. For a Layer 3/4 policy map (the **policy-map** command), you must specify a Layer 3/4 class map name (the **class-map** or **class-map type management** command). For an inspection policy map (the **policy-map type inspect** command), you must specify an inspection class map name (the **class-map type inspect** command).

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Policy-map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To use the **class** command, use the Modular Policy Framework. To use a class in a Layer 3/4 policy map, enter the following commands:

1. **class-map**—Identify the traffic on which you want to perform actions.
2. **policy-map**—Identify the actions associated with each class map.
   a. **class**—Identify the class map on which you want to perform actions.
   b. *commands for supported features*—For a given class map, you can configure many actions for various features, including QoS, application inspection, CSC or AIP SSM, TCP and UDP connections limits and timeout, and TCP normalization. See the CLI configuration guide for more details about the commands available for each feature.
3. **service-policy**—Assigns the policy map to an interface or globally.

To use a class in an inspection policy map, enter the following commands:

1. **class-map type inspect**—Identify the traffic on which you want to perform actions.

2. **policy-map type inspect**—Identify the actions associated with each class map.
   a. **class**—Identify the inspection class map on which you want to perform actions.
   b. *commands for application types*—See the CLI configuration guide for commands available for each application type. Actions supported in class configuration mode of an inspection policy map include:
   – Dropping a packet
   – Dropping a connection
   – Resetting a connection
   – Logging
   – Rate-limiting of messages
   – Masking content
   c. **parameters**—Configure parameters that affect the inspection engine. The CLI enters parameters configuration mode. See the CLI configuration guide for available commands.
3. **class-map**—Identify the traffic on which you want to perform actions.
4. **policy-map**—Identify the actions associated with each class map.
   a. **class**—Identify the Layer 3/4 class map on which you want to perform actions.
   b. **inspect** *application inspect_policy_map*—Enables application inspection, and calls an inspection policy map to perform special actions.
5. **service-policy**—Assigns the policy map to an interface or globally.

The configuration always includes a class map called **class-default** that matches all traffic. At the end of every Layer 3/4 policy map, the configuration includes the **class-default** class map with no actions defined. You can optionally use this class map when you want to match all traffic, and do not want to bother creating another class map. In fact, some features are only configurable for the **class-default** class map, such as the **shape** command.

Including the **class-default** class map, up to 63 **class** and **match** commands can be configured in a policy map.

Examples

The following is an example of a **policy-map** command for connection policy that includes the **class** command. It limits the number of connections allowed to the web server 10.1.1.1:

```
hostname(config)# access-list http-server permit tcp any host 10.1.1.1
hostname(config)# class-map http-server
hostname(config-cmap)# match access-list http-server

hostname(config)# policy-map global-policy
hostname(config-pmap)# description This policy map defines a policy concerning connection
to http server.
hostname(config-pmap)# class http-server
hostname(config-pmap-c)# set connection conn-max 256
```

The following example shows how multi-match works in a policy map:

```
hostname(config)# class-map inspection_default
hostname(config-cmap)# match default-inspection-traffic
hostname(config)# class-map http_traffic
hostname(config-cmap)# match port tcp eq 80

hostname(config)# policy-map outside_policy
hostname(config-pmap)# class inspection_default
```

```
hostname(config-pmap-c)# inspect http http_map
hostname(config-pmap-c)# inspect sip
hostname(config-pmap)# class http_traffic
hostname(config-pmap-c)# set connection timeout tcp 0:10:0
```

The following example shows how traffic matches the first available class map, and will not match any subsequent class maps that specify actions in the same feature domain:

```
hostname(config)# class-map telnet_traffic
hostname(config-cmap)# match port tcp eq 23
hostname(config)# class-map ftp_traffic
hostname(config-cmap)# match port tcp eq 21
hostname(config)# class-map tcp_traffic
hostname(config-cmap)# match port tcp range 1 65535
hostname(config)# class-map udp_traffic
hostname(config-cmap)# match port udp range 0 65535
hostname(config)# policy-map global_policy
hostname(config-pmap)# class telnet_traffic
hostname(config-pmap-c)# set connection timeout tcp 0:0:0
hostname(config-pmap-c)# set connection conn-max 100
hostname(config-pmap)# class ftp_traffic
hostname(config-pmap-c)# set connection timeout tcp 0:5:0
hostname(config-pmap-c)# set connection conn-max 50
hostname(config-pmap)# class tcp_traffic
hostname(config-pmap-c)# set connection timeout tcp 2:0:0
hostname(config-pmap-c)# set connection conn-max 2000
```

When a Telnet connection is initiated, it matches **class telnet_traffic**. Similarly, if an FTP connection is initiated, it matches **class ftp_traffic**. For any TCP connection other than Telnet and FTP, it will match **class tcp_traffic**. Even though a Telnet or FTP connection can match **class tcp_traffic**, the ASA does not make this match because they previously matched other classes.

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
class-map type management	Creates a Layer 3/4 class map for management traffic.
clear configure policy-map	Removes all policy map configuration, except for any policy map that is in use in a **service-policy** command.
match	Defines the traffic-matching parameters.
policy-map	Configures a policy; that is, an association of one or more traffic classes, each with one or more actions.

class-map

When using the Modular Policy Framework, identify Layer 3 or 4 traffic to which you want to apply actions by using the **class-map** command (without the **type** keyword) in global configuration mode. To delete a class map, use the **no** form of this command.

class-map *class_map_name*

no class-map *class_map_name*

Syntax Description

class_map_name	Specifies the class map name up to 40 characters in length. The names "class-default" and any name that begins with "_internal" or "_default" are reserved. All types of class maps use the same name space, so you cannot resuse a name already used by another type of class map.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This type of class map is for Layer 3/4 through traffic only. For management traffic destined to the ASA, see the **class-map type management** command.

A Layer 3/4 class map identifies Layer 3 and 4 traffic to which you want to apply actions. You can create multiple Layer 3/4 class maps for each Layer 3/4 policy map.

Default Class Maps

The configuration includes a default Layer 3/4 class map that the ASA uses in the default global policy. It is called **inspection_default** and matches the default inspection traffic:

```
class-map inspection_default
 match default-inspection-traffic
```

Another class map that exists in the default configuration is called class-default, and it matches all traffic:

```
class-map class-default
 match any
```

This class map appears at the end of all Layer 3/4 policy maps and essentially tells the ASA to not perform any actions on all other traffic. You can use the class-default class map if desired, rather than making your own **match any** class map. In fact, some features are only available for class-default, such as QoS traffic shaping.

Maximum Class Maps

The maximum number of class maps of all types is 255 in single mode or per context in multiple mode. Class maps include the following types:

- **class-map**
- **class-map type management**
- **class-map type inspection**
- **class-map type regex**
- **match** commands in policy-map type inspect configuration mode

This limit also includes default class maps of all types.

Configuration Overview

Configuring Modular Policy Framework consists of four tasks:

1. Identify the Layer 3 and 4 traffic to which you want to apply actions using the **class-map** or **class-map type management** command.
2. (Application inspection only) Define special actions for application inspection traffic using the **policy-map type inspect** command.
3. Apply actions to the Layer 3 and 4 traffic using the **policy-map** command.
4. Activate the actions on an interface using the **service-policy** command.

Use the **class-map** command to enter class-map configuration mode. From class-map configuration mode, you can define the traffic to include in the class using the **match** command. A Layer 3/4 class map contains, at most, one **match** command (with the exception of the **match tunnel-group** and **match default-inspection-traffic** commands) that identifies the traffic included in the class map.

Examples

The following example creates four Layer 3/4 class maps:

```
hostname(config)# access-list udp permit udp any any
hostname(config)# access-list tcp permit tcp any any
hostname(config)# access-list host_foo permit ip any 10.1.1.1 255.255.255.255

hostname(config)# class-map all_udp
hostname(config-cmap)# description "This class-map matches all UDP traffic"
hostname(config-cmap)# match access-list udp

hostname(config-cmap)# class-map all_tcp
hostname(config-cmap)# description "This class-map matches all TCP traffic"
hostname(config-cmap)# match access-list tcp

hostname(config-cmap)# class-map all_http
hostname(config-cmap)# description "This class-map matches all HTTP traffic"
hostname(config-cmap)# match port tcp eq http

hostname(config-cmap)# class-map to_server
hostname(config-cmap)# description "This class-map matches all traffic to server 10.1.1.1"
hostname(config-cmap)# match access-list host_foo
```

Related Commands

Command	Description
class-map type management	Creates a class map for traffic to the ASA.
policy-map	Creates a policy map by associating the traffic class with one or more actions.
policy-map type inspect	Defines special actions for application inspection.
service-policy	Creates a security policy by associating the policy map with one or more interfaces.
show running-config class-map	Displays the information about the class map configuration.

class-map type inspect

When using the Modular Policy Framework, match criteria that is specific to an inspection application by using the **class-map type inspect** command in global configuration mode. To delete an inspection class map, use the **no** form of this command.

class-map type inspect *application* [**match-all | match-any]** *class_map_name*

no class-map [**type inspect** *application* [**match-all | match-any**]] *class_map_name*

Syntax Description

application	Specifies the type of application traffic you want to match. Available types include: • **dns** • **ftp** • **h323** • **http** • **im** • **scansafe** • **sip**
class_map_name	Specifies the class map name up to 40 characters in length. The names "class-default" and any name that begins with "_internal" or "_default" are reserved. All types of class maps use the same name space, so you cannot resuse a name already used by another type of class map.
match-all	(Optional) Specifies that traffic must match all criteria to match the class map. **match-all** is the default if you do not specify an option.
match-any	(Optional) Specifies that traffic can match one or more criteria to match the class map.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.
8.0(2)	The **match-any** keyword was added.

Usage Guidelines

Modular Policy Framework lets you configure special actions for many application inspections. When you enable an inspection engine in the Layer 3/4 policy map, you can also optionally enable actions as defined in an *inspection policy map* (see the **policy-map type inspect** command).

In the inspection policy map, you can identify the traffic you want to act upon by creating an inspection class map. The class map contains one or more **match** commands. (You can alternatively use **match** commands directly in the inspection policy map if you want to pair a single criterion with an action). You can match criteria that is specific to an application. For example, for DNS traffic, you can match the domain name in a DNS query.

A class map groups multiple traffic matches (in a match-all class map), or lets you match any of a list of matches (in a match-any class map). The difference between creating a class map and defining the traffic match directly in the inspection policy map is that the class map lets you group multiple match commands, and you can reuse class maps. For the traffic that you identify in this class map, you can specify actions such as dropping, resetting, and/or logging the connection in the inspection policy map.

The maximum number of class maps of all types is 255 in single mode or per context in multiple mode. Class maps include the following types:

- **class-map**
- **class-map type management**
- **class-map type inspection**
- **class-map type regex**
- **match** commands in policy-map type inspect configuration mode

This limit also includes default class maps of all types. See the **class-map** command for more information.

Examples

The following example creates an HTTP class map that must match all criteria:

```
hostname(config-cmap)# class-map type inspect http match-all http-traffic
hostname(config-cmap)# match req-resp content-type mismatch
hostname(config-cmap)# match request body length gt 1000
hostname(config-cmap)# match not request uri regex class URLs
```

The following example creates an HTTP class map that can match any of the criteria:

```
hostname(config-cmap)# class-map type inspect http match-any monitor-http
hostname(config-cmap)# match request method get
hostname(config-cmap)# match request method put
hostname(config-cmap)# match request method post
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map for through traffic.
policy-map	Creates a policy map by associating the traffic class with one or more actions.
policy-map type inspect	Defines special actions for application inspection.
service-policy	Creates a security policy by associating the policy map with one or more interfaces.
show running-config class-map	Displays the information about the class map configuration.

class-map type management

When using the Modular Policy Framework, identify Layer 3 or 4 management traffic destined for the ASA to which you want to apply actions by using the **class-map type management** command in global configuration mode. To delete a class map, use the **no** form of this command.

class-map type management *class_map_name*

no class-map type management *class_map_name*

Syntax Description

class_map_name	Specifies the class map name up to 40 characters in length. The names "class-default" and any name that begins with "_internal" or "_default" are reserved. All types of class maps use the same name space, so you cannot resuse a name already used by another type of class map.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.
8.0(2)	The s**et connection** command is now available for a Layer 3/4 management class map, for to-the-ASA management traffic. Only the **conn-max** and **embryonic-conn-max** keywords are available.

Usage Guidelines

This type of class map is for management traffic only. For through traffic, see the **class-map** command (without the **type** keyword).

For management traffic to the ASA, you might want to perform actions specific to this kind of traffic. The types of actions available for a management class map in the policy map are specialized for management traffic. For example, this type of class map lets you inspect RADIUS accounting traffic and set connection limits.

A Layer 3/4 class map identifies Layer 3 and 4 traffic to which you want to apply actions. The maximum number of class maps of all types is 255 in single mode or per context in multiple mode.

You can create multiple Layer 3/4 class maps (management or through traffic) for each Layer 3/4 policy map.

Configuring Modular Policy Framework consists of four tasks:

1. Identify the Layer 3 and 4 traffic to which you want to apply actions using the **class-map** and **class-map type management** commands.
2. (Application inspection only) Define special actions for application inspection traffic using the **policy-map type inspect** command.
3. Apply actions to the Layer 3 and 4 traffic using the **policy-map** command.
4. Activate the actions on an interface using the **service-policy** command.

Use the **class-map type management** command to enter class-map configuration mode. From class-map configuration mode, you can define the traffic to include in the class using the **match** command. You can specify a management class map that can match an access list or TCP or UDP ports. A Layer 3/4 class map contains, at most, one **match** command that identifies the traffic included in the class map.

The maximum number of class maps of all types is 255 in single mode or per context in multiple mode. Class maps include the following types:

- **class-map**
- **class-map type management**
- **class-map type inspection**
- **class-map type regex**
- **match** commands in policy-map type inspect configuration mode

This limit also includes default class maps of all types. See the **class-map** command for more information.

Examples

The following example creates a Layer 3/4 management class map:

```
hostname(config)# class-map type management radius_acct
hostname(config-cmap)# match port tcp eq 10000
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map for through traffic.
policy-map	Creates a policy map by associating the traffic class with one or more actions.
policy-map type inspect	Defines special actions for application inspection.
service-policy	Creates a security policy by associating the policy map with one or more interfaces.
show running-config class-map	Displays the information about the class map configuration.

class-map type regex

When using the Modular Policy Framework, group regular expressions for use with matching text by using the **class-map type regex** command in global configuration mode. To delete a regular expression class map, use the **no** form of this command.

class-map type regex match-any *class_map_name*

no class-map [**type regex match-any**] *class_map_name*

Syntax Description

class_map_name	Specifies the class map name up to 40 characters in length. The names "class-default" and any name that begins with "_internal" or "_default" are reserved. All types of class maps use the same name space, so you cannot resuse a name already used by another type of class map.
match-any	Specifies that the traffic matches the class map if it matches only one of the regular expressions. **match-any** is the only option.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

Modular Policy Framework lets you configure special actions for many application inspections. When you enable an inspection engine in the Layer 3/4 policy map, you can also optionally enable actions as defined in an *inspection policy map* (see the **policy-map type inspect** command).

In the inspection policy map, you can identify the traffic you want to act upon by creating an inspection class map containing one or more **match** commands or you can use **match** commands directly in the inspection policy map. Some **match** commands let you identify text in a packet using a regular expression; for example, you can match URL strings inside HTTP packets. You can group regular expressions in a regular expression class map.

Before you create a regular expression class map, create the regular expressions using the **regex** command. Then, identify the named regular expressions in class-map configuration mode using the **match regex** command.

The maximum number of class maps of all types is 255 in single mode or per context in multiple mode. Class maps include the following types:

- **class-map**
- **class-map type management**
- **class-map type inspection**
- **class-map type regex**
- **match** commands in policy-map type inspect configuration mode

This limit also includes default class maps of all types. See the **class-map** command for more information.

Examples

The following example creates two regular expressions, and adds them to a regular expression class map. Traffic matches the class map if it includes the string “example.com” or “example2.com.”

```
hostname(config)# regex url_example example\.com
hostname(config)# regex url_example2 example2\.com
hostname(config)# class-map type regex match-any URLs
hostname(config-cmap)# match regex url_example
hostname(config-cmap)# match regex url_example2
```

Related Commands

Command	Description
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a policy map by associating the traffic class with one or more actions.
policy-map type inspect	Defines special actions for application inspection.
service-policy	Creates a security policy by associating the policy map with one or more interfaces.
regex	Creates a regular expression.

clear aaa kerberos

To clear all Kerberos ticket information on the ASA, use the **clear aaa kerberos** command in webvpn configuration mode.

[**cluster exec**] **clear aaa kerberos** [**username** *user* | **host** *ip* | *hostname*]

Syntax Description

cluster exec	(Optional) In a clustering environment, enables you to issue the **clear aaa kerberos** command in one unit and run the command in all the other units at the same time.
host	Specifies the specific host that you want to clear from the Kerberos ticket.
hostname	Specifies the hostname.
ip	Specifies the IP address for the host.
username	Specifies the specific user that you want to clear from the Kerberos ticket.

Defaults

No defaults exist for this command.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
8.4(1)	This command was introduced.
9.0(1)	The **cluster exec** option was added.

Usage Guidelines

Use the **clear aaa kerberos** command in webvpn configuration mode to clear all the Kerberos tickets cached on the ASA. The **username** and **host** keywords are used to clear the Kerberos tickets of a specific user or host.

Examples

The following example shows the usage of the **clear aaa kerberos** command:

```
hostname(config)# clear aaa kerberos
```

Related Commands

Command	Description
show aaa kerberos	Displays all the Kerberos tickets cached on the ASA.

clear aaa local user fail-attempts

To reset the number of failed user authentication attempts to zero without modifying the user locked-out status, use the **clear aaa local user fail-attempts** command in privileged EXEC mode.

[**cluster exec**] **clear aaa local user authentication fail-attempts** {**username** *name* | **all**}

Syntax Description

all	Resets the failed-attempts counter to 0 for all users.
cluster exec	(Optional) In a clustering environment, enables you to issue the **clear aaa local user authentication fail-attempts** command in one unit and run the command in all the other units at the same time.
name	Specifies a specific username for which the failed-attempts counter is reset to 0.
username	Indicates that the following parameter is a username, for which the failed-attempts counter is reset to 0.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	The **cluster exec** option was added.

Usage Guidelines

Use this command if a user fails to authenticate after a few attempts.

After the configured number of failed authentication attempts, the user is locked out of the system and cannot successfully log in until either a system administrator unlocks the username or the system reboots. The number of failed attempts resets to zero and the lockout status resets to No when the user successfully authenticates, or when the ASA reboots. In addition, the system resets the counter to zero when the configuration has recently been modified.

Locking or unlocking a username results in a system log message. A system administrator with a privilege level of 15 cannot be locked out.

Examples

The following example shows use of the **clear aaa local user authentication fail-attempts** command to reset the failed-attempts counter to 0 for the username anyuser:

```
hostname(config)# clear aaa local user authentication fail-attempts username anyuser
hostname(config)#
```

The following example shows use of the **clear aaa local user authentication fail-attempts** command to reset the failed-attempts counter to 0 for all users:

```
hostname(config)# clear aaa local user authentication fail-attempts all
hostname(config)#
```

Related Commands

Command	Description
aaa local authentication attempts max-fail	Configures a limit on the number of failed user authentication attempts allowed.
clear aaa local user lockout	Resets the number of failed user authentication attempts to zero without modifying the locked-out status of the user.
show aaa local user [locked]	Shows the list of usernames that are currently locked.

clear aaa local user lockout

To clear the lockout status of the specified users and set their failed-attempts counter to 0, use the **clear aaa local user lockout** command in privileged EXEC mode.

[**cluster exec**] **clear aaa local user lockout** {**username** *name* | **all**}

Syntax Description

all	Resets the failed-attempts counter to 0 for all users.
cluster exec	(Optional) In a clustering environment, enables you to issue the **clear aaa local user lockout** command in one unit and run the command in all the other units at the same time.
name	Specifies a specific username for which the failed-attempts counter is reset to 0.
username	Indicates that the following parameter is a username, for which the failed-attempts counter is reset to 0.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	The **cluster exec** option was added.

Usage Guidelines

You can specify a single user by using the **username** option or all users with the **all** option.

This command affects only the status of users that are locked out.

The administrator cannot be locked out of the device.

Locking or unlocking a username results in a syslog message.

Examples

The following example shows use of the **clear aaa local user lockout** command to clear the lockout condition and reset the failed-attempts counter to 0 for the username anyuser:

```
hostname(config)# clear aaa local user lockout username anyuser
hostname(config)#
```

Related Commands

Command	Description
aaa local authentication attempts max-fail	Configures a limit on the number of failed user authentication attempts allowed.
clear aaa local user fail-attempts	Resets the number of failed user authentication attempts to zero without modifying the locked-out status of the user.
show aaa local user [locked]	Shows the list of usernames that are currently locked.

clear aaa-server statistics

To reset the statistics for AAA servers, use the **clear aaa-server statistics** command in privilged EXEC mode.

clear aaa-server statistics [**LOCAL** | *groupname* [**host** *hostname*] | **protocol** *protocol*]

Syntax Description

groupname	(Optional) Clears statistics for servers in a group.
host *hostname*	(Optional) Clears statistics for a particular server in the group.
LOCAL	(Optional) Clears statistics for the LOCAL user database.
protocol *protocol*	(Optional) Clears statistics for servers of the specificed protocol: • **kerberos** • **ldap** • **nt** • **radius** • **sdi** • **tacacs+**

Defaults

Remove all AAA server statistics across all groups.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was modified to adhere to CLI guidelines. In the protocol values, **nt** replaces the older **nt-domain**, and **sdi** replaces the older **rsa-ace**.

Examples

The following example shows how to reset the AAA statistics for a specific server in a group:

```
hostname(config)# clear aaa-server statistics svrgrp1 host 1.2.3.4
```

The following example shows how to reset the AAA statistics for an entire server group:

```
hostname(config)# clear aaa-server statistics svrgrp1
```

The following example shows how to reset the AAA statistics for all server groups:

```
hostname(config)# clear aaa-server statistics
```

The following example shows how to reset the AAA statistics for a particular protocol (in this case, TACACS+):

```
hostname(config)# clear aaa-server statistics protocol tacacs+
```

Related Commands

Command	Description
aaa-server protocol	Specifies and manages the grouping of AAA server connection data.
clear configure aaa-server	Removes all nondefault AAA server groups or clear the specified group.
show aaa-server	Displays AAA server statistics.
show running-config aaa-server	Displays the current AAA server configuration values.

clear access-list

To clear an access-list counter, use the **clear access-list** command in global configuration mode.

clear access-list *id* **counters**

Syntax Description

counters	Clears access list counters.
id	Name or number of an access list.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

When you enter the **clear access-list** command, you must specify the *id* of an access list to clear the counters.

Examples

The following example shows how to clear a specific access list counter:

```
hostname# clear access-list inbound counters
```

Related Commands

Command	Description
access-list extended	Adds an access list to the configuration and configures policy for IP traffic through the firewall.
access-list standard	Adds an access list to identify the destination IP addresses of OSPF routes, which can be used in a route map for OSPF redistribution.
clear configure access-list	Clears an access list from the running configuration.
show access-list	Displays the access list entries by number.
show running-config access-list	Displays the access list configuration that is running on the adaptive security appliance.

clear arp

To clear dynamic ARP entries or ARP statistics, use the **clear arp** command in privileged EXEC mode.

clear arp [**statistics**]

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example clears all ARP statistics:

```
hostname# clear arp statistics
```

Related Commands

Command	Description
arp	Adds a static ARP entry.
arp-inspection	For transparent firewall mode, inspects ARP packets to prevent ARP spoofing.
show arp statistics	Shows ARP statistics.
show running-config arp	Shows the current configuration of the ARP timeout.

clear asp drop

To clear accelerated security path (ASP) drop statistics, use the **clear asp drop** command in privileged EXEC mode.

clear asp drop [**flow** *type* | **frame** *type*]

Syntax Description

flow	(Optional) Clears the dropped flow statistics.
frame	(Optional) Clears the dropped packet statistics.
type	(Optional) Clears the dropped flow or packets statistics for a particular process.

Defaults

By default, this command clears all drop statistics.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Process types include the following:

```
acl-drop
audit-failure
closed-by-inspection
conn-limit-exceeded
fin-timeout
flow-reclaimed
fo-primary-closed
fo-standby
fo_rep_err
host-removed
inspect-fail
ips-fail-close
ips-request
ipsec-spoof-detect
loopback
mcast-entry-removed
mcast-intrf-removed
mgmt-lockdown
nat-failed
nat-rpf-failed
need-ike
```

```
no-ipv6-ipsec
non_tcp_syn
out-of-memory
parent-closed
pinhole-timeout
recurse
reinject-punt
reset-by-ips
reset-in
reset-oout
shunned
syn-timeout
tcp-fins
tcp-intecept-no-response
tcp-intercept-kill
tcp-intercept-unexpected
tcpnorm-invalid-syn
tcpnorm-rexmit-bad
tcpnorm-win-variation
timeout
tunnel-pending
tunnel-torn-down
xlate-removed
```

Examples

The following example clears all drop statistics:

```
hostname# clear asp drop
```

Related Commands

Command	Description
show asp drop	Shows the accelerated security path counters for dropped packets.

clear asp table

To clear the hit counters in ASP ARP tables, ASP classify tables, or both, use the **clear asp table** command in privileged EXEC mode.

clear asp table [**arp** | **classify**]

Syntax Description

arp	Clears the hits counters in ASP ARP tables only.
classify	Clears the hits counters in ASP classify tables only

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.2(4)	This command was introduced.

Usage Guidelines

Only two options, **arp** and **classify**, have hits in the **clear asp table** command.

Examples

The following example clears all ASP table statistics:

```
hostname# clear asp table

Warning: hits counters in asp arp and classify tables are cleared, which might impact the
hits statistic of other modules and output of other "show" commands! hostname#clear asp
table arp
Warning: hits counters in asp arp table are cleared, which might impact the hits statistic
of other modules and output of other "show" commands! hostname#clear asp table classify
Warning: hits counters in classify tables are cleared, which might impact the hits
statistic of other modules and output of other "show" commands! hostname(config)# clear
asp table
Warning: hits counters in asp tables are cleared, which might impact the hits statistics
of other modules and output of other "show" commands! hostname# sh asp table arp

Context: single_vf, Interface: inside 10.1.1.11 Active 00e0.8146.5212 hits 0

Context: single_vf, Interface: identity :: Active 0000.0000.0000 hits 0 0.0.0.0 Active
0000.0000.0000 hits 0
```

Related Commands

Command	Description
show asp table arp	Shows the contents of the accelerated security path, which might help you troubleshoot a problem.

clear asp table filter

To clear the hit counters for the ASP filter table entries, use the **clear asp table filter** command in privileged EXEC mode.

clear asp table filter [**access-list** *acl-name*]

Syntax Description

acl-name	Clears the hit counters only for a specified access list.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
8.2(2)	This command was introduced.

Usage Guidelines

Only the **access-list** option has hits in the **clear asp table filter** command.

Examples

The following example clears all ASP filter table statistics:

```
hostname# clear asp table filter
```

Related Commands

Command	Description
show asp table arp	Shows the contents of the accelerated security path, which might help you troubleshoot a problem.

clear blocks

To reset the packet buffer counters such as the low watermark and history information, use the **clear blocks** command in privileged EXEC mode.

clear blocks

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Resets the low watermark counters to the current available blocks in each pool. Addtionally, this command clears the history information stored during the last buffer allocation failure.

Examples

The following example clears the blocks:

```
hostname# clear blocks
```

Related Commands

Command	Description
blocks	Increases the memory assigned to block diagnostics.
show blocks	Shows the system buffer utilization.

clear-button

To customize the Clear button of the WebVPN page login field that is displayed to WebVPN users when they connect to the ASA, use the **clear-button** command in customization configuration mode. To remove the command from the configuration and cause the value to be inherited, use the **no** form of this command.

clear-button {**text** | **style**} *value*

no clear-button [{**text** | **style**}] *value*

Syntax Description

style	Specifies you are changing the style.
text	Specifies you are changing the text.
value	The actual text to display or Cascading Style Sheet (CSS) parameters, each with a maximum of 256 characters allowed.

Defaults

The default text is “Clear”.

The default style is border:1px solid black;background-color:white;font-weight:bold;font-size:80%.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Customization configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

The **style** option is expressed as any valid Cascading Style Sheet (CSS) parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium (W3C) website at www.w3.org. Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at www.w3.org/TR/CSS21/propidx.html.

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.
- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma separated entry indicates the level of intensity of each color to combine with the others.
- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.

Note To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

Examples

The following example changes the default background color of the Clear button from black to blue:

```
hostname(config)# webvpn
hostname(config-webvpn)# customization cisco
hostname(config-webvpn-custom)# clear-button style background-color:blue
```

Related Commands

Command	Description
group-prompt	Customizes the group prompt of the WebVPN page Login field.
login-button	Customizes the login button of the WebVPN page Login field.
login-title	Customizes the title of the WebVPN page Login field.
password-prompt	Customizes the password prompt of the WebVPN page Login field.
username-prompt	Customizes the username prompt of the WebVPN page Login field.

clear capture

To clear the capture buffer, use the **clear capture** *capture_name* command in privileged EXEC configuration mode.

clear capture *capture_name*

Syntax Description

capture_name	Name of the packet capture.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The shortened form of the **clear capture** (for example, **cl cap** or **clear cap**) is not supported to prevent accidental destruction of all the packet captures.

Examples

This example shows how to clear the capture buffer for the capture buffer “example”:

```
hostname(config)# clear capture example
```

Related Commands

Command	Description
capture	Enables packet capture capabilities for packet sniffing and network fault isolation.
show capture	Displays the capture configuration when no options are specified.

clear cluster info

To clear cluster statistics, use the **clear cluster info** command in privileged EXEC mode.

clear cluster info {trace | transport}

Syntax Description

trace	Clears cluster event trace information.
transport	Clears cluster transport statistics.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	—	•

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

To view cluster statistics, use the **show cluster info** command.

Examples

The following example clears cluster event trace information:

```
hostname# clear cluster info trace
```

Related Commands

Command	Description
show cluster info	Shows cluster statistics.

clear compression

To clear compression statistics for all SVC and WebVPN connections, use the **clear compression** command in privileged EXEC mode.

clear compression {**all** | **svc** | **http-comp**}

Syntax Description

all	Clears all compressions statistics.
http-comp	Clears HTTP-COMP statistics.
svc	Clears SVC compression statistics.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•		—

Command History

Release	Modification
7.1(1)	This command was introduced.

Examples

The following example, clears the compression configuration for the user:

```
hostname# clear configure compression
```

Related Commands

Command	Description
compression	Enables compression for all SVC and WebVPN connections.
svc compression	Enables compression of data over an SVC connection for a specific group or user.

CHAPTER 6

clear configure through clear configure http Commands

clear configure

To clear the running configuration, use the **clear configure** command in global configuration mode.

clear configure {**primary** | **secondary** | **all** | *command*}

Syntax Description

all	Clears the entire running configuration.
command	Clears the configuration for a specified command. For more information, see individual entries in this guide for each **clear configure** *command* command.
primary	Clears commands related to connectivity, including the following commands: • **tftp-server** • **shun** • **route** • **ip address** • **mtu** • **failover** • **monitor-interface** • **boot**
secondary	Clears commands not related to connectivity (that are cleared using the **primary** keyword).

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.
8.2(2)	Support for password encryption has been added.

Usage Guidelines

When you enter this command in a security context, you clear only the context configuration. If you enter this command in the system execution space, you clear the system running configuration as well as all context running configurations. Because you cleared all context entries in the system configuration (see the **context** command), the contexts are no longer running, and you cannot change to a context execution space.

Before clearing the configuration, make sure you save any changes to the **boot config** command (which specifies the startup configuration location) to the startup configuration; if you changed the startup configuration location only in the running configuration, then when you restart, the configuration loads from the default location.

Note When you enter the **clear configure all** command, the master pass phrase used in password encryption is not removed. For more information about the master pass phrase, see the **config key password-encryption** command.

Examples

The following example clears the entire running configuration:

```
hostname(config)# clear configure all
```

Related Commands

Command	Description
configure http	Merges a configuration file from the specified HTTP(S) URL with the running configuration.
configure memory	Merges the startup configuration with the running configuration.
configure net	Merges a configuration file from the specified TFTP URL with the running configuration.
configure factory-default	Adds commands you enter at the CLI to the running configuration.
show running-config	Shows the running configuration.

clear configure aaa

To clear the AAA configuration, use the **clear configure aaa** command in global configuration mode.

clear configure aaa

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was modified for consistency within the CLI.

Usage Guidelines

The **clear configure aaa** command removes the AAA command statements from the configuration. This command also resets the AAA parameters to their default values, if any.

There is no undo.

Examples

The following example clears the AAA configuration:

```
hostname(config)# clear configure aaa
```

Related Commands

Command	Description
aaa accounting	Enables, disables, or views recordkeeping of which network services a user has accessed.
aaa authentication	Enables or views LOCAL, TACACS+, or RADIUS user authentication, on a server designated by the **aaa-server** command, or for ASDM user authentication.
aaa authorization	Enables or disables user authorization for a LOCAL or a TACACS+ server designated by the **aaa-server** command, or for ASDM user authentication.
show running-config aaa	Displays the AAA configuration.

clear configure aaa-server

To remove all AAA server groups or to clear the specified group, use the **clear configure aaa-server** command in global configuration mode.

clear configure aaa-server [*server-tag*]

clear configure aaa-server [*server-tag*] **host** *server-ip*

Syntax Description

server-ip	The IP address of the AAA server.
server-tag	(Optional) Symbolic name of the server group to be cleared.

Defaults

Remove all AAA server groups.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You can specify a particular AAA server group or, by default, all AAA server groups.

Use the **host** keyword to specify a particular server within a server group.

This command also resets the AAA server parameters to their default values, if any.

Examples

The following example removes AAA server group svrgrp1:

```
hostname(config)# aaa-server svrgrp1 protocol sdi
hostname(config)# aaa-server svrgrp1 host 10.2.3.4
hostname(config-aaa-server)# timeout 9
hostname(config-aaa-server)# retry 7
hostname(config-aaa-server)# sdi-version sdi-5
hostname(config-aaa-server)# exit
```

Given the preceding configuration, the following example shows how to remove a specific server from a group:

```
hostname(config)# clear config aaa-server svrgrp1 host 1.2.3.4
```

The following example shows how to remove a server group:

```
hostname(config)# clear config aaa-server svrgrp1
```

The following example shows how to remove all server groups:

```
hostname(config)# clear config aaa-server
```

Related Commands

Command	Description
aaa-server host	Specifies and manages host-specific AAA server connection data.
aaa-server protocol	Allows you to configure AAA server parameters that are group-specific and common to all hosts.
show running-config aaa	Displasy the current maximum number of concurrent proxy connections allowed per user, along with other AAA configuration values.

clear configure access-group

To remove access groups from all the interfaces, use the **clear configure access-group** command in global configuration mode.

clear configure access-group

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	Added the **configure** keyword.

Examples

The following example shows how to remove all access groups:

```
hostname(config)# clear configure access-group
```

Related Commands

Command	Description
access-group	Binds an access list to an interface.
show running-config access-group	Displays the current access group configuration.

clear configure access-list

To clear an access list from the running configuration, use the **clear configure access list** command in global configuration mode.

clear configure access-list [*id*]

Syntax Description

id	(Optional) Name or number of an access list.

Defaults

All the access lists are cleared from the running configuration.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **clear configure access-list** command automatically unbinds an access list from a **crypto map** command or interface. The unbinding of an access list from a **crypto map** command can lead to a condition that discards all packets because the **crypto map** commands referencing the access list are incomplete. To correct the condition, either define other **access-list** commands to complete the **crypto map** commands or remove the **crypto map** commands that pertain to the **access-list** command. See the **crypto map client** command for more information.

Examples

The following example shows how to clear the access lists from the running configuration:

```
hostname(config)# clear configure access-list
```

Related Commands

Command	Description
access-list extended	Adds an access list to the configuration and configures policy for IP traffic through the firewall.
access-list standard	Adds an access list to identify the destination IP addresses of OSPF routes, which can be used in a route map for OSPF redistribution.
clear access-list	Clears access list counters.

Command	Description
show access-list	Displays counters for an access list.
show running-config access-list	Displays the access list configuration running on the ASA.

clear configure alias

To remove all **alias** commands from the configuration, use the **clear configure alias** command in global configuration mode.

clear configure alias

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to remove all **alias** commands from the configuration:

```
hostname(config)# clear configure alias
```

Related Commands

Command	Description
alias	Translates one address into another.
show running-config alias	Displays the overlapping addresses with dual NAT commands in the configuration.

clear configure arp

To clear static ARP entries added by the **arp** command, use the **clear configure arp** command in global configuration mode.

clear configure arp

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	—	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example clears static ARP entries from the configuration:

```
hostname(config)# clear configure arp
```

Related Commands

Command	Description
arp	Adds a static ARP entry.
arp-inspection	For transparent firewall mode, inspects ARP packets to prevent ARP spoofing.
firewall transparent	Sets the firewall mode to transparent.
show arp statistics	Shows ARP statistics.
show running-config arp	Shows the current configuration of the ARP timeout.

clear configure arp-inspection

To clear the ARP inspection configuration, use the **clear configure arp-inspection** command in global configuration mode.

clear configure arp-inspection

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	—	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example clears the ARP inspection configuration:

```
hostname(config)# clear configure arp-inspection
```

Related Commands

Command	Description
arp	Adds a static ARP entry.
arp-inspection	For transparent firewall mode, inspects ARP packets to prevent ARP spoofing.
firewall transparent	Sets the firewall mode to transparent.
show arp statistics	Shows ARP statistics.
show running-config arp	Shows the current configuration of the ARP timeout.

clear configure asdm

To remove all **asdm** commands from the running configuration, use the **clear configure asdm** command in global configuration mode.

clear configure asdm [**location** | **group** | **image**]

Syntax Description

group	(Optional) Clears only the **asdm group** commands from the running configuration.
image	(Optional) Clears only the **asdm image** command from the running configuration.
location	(Optional) Clears only the **asdm location** commands from the running configuration.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was changed from the **clear pdm** command to the **clear configure asdm** command.

Usage Guidelines

To view the **asdm** commands in the running configuration, use the **show running-config asdm** command.

Clearing the **asdm image** command from the configuration disables ASDM access. Clearing the **asdm location** and **asdm group** commands from the configuration causes ASDM to regenerate those commands the next time ASDM is accessed, but may disrupt active ASDM sessions.

Note On ASAs running in multiple context mode, the **clear configure asdm image** command is only available in the system execution space, while the **clear configure asdm group** and **clear configure asdm location** commands are only available in the user contexts.

Examples

The following example clears the **asdm group** commands from the running configuration:

```
hostname(config)# clear configure asdm group
```

```
hostname(config)#
```

Related Commands

Command	Description
asdm group	Used by ASDM to associate object group names with interfaces.
asdm image	Specifies the ASDM image file.
asdm location	Used by ASDM to record IP address to interface associations.
show running-config asdm	Displays the **asdm** commands in the running configuration.

clear configure auth-prompt

To remove the previously specified authentication prompt challenge text and revert to the default value, if any, use the **clear configure auth-prompt** command in global configuration mode.

clear configure auth-prompt

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was modified to conform with CLI standards.

Usage Guidelines

After you clear the authentication prompt, the prompt users see when they log in depends on the protocol they use:

- Users who log in using HTTP see `HTTP Authentication`.
- Users who log in using FTP see `FTP Authentication`.
- Users who log in using Telnet see no prompt.

Examples

The following example shows how to clear the auth-prompt:

```
hostname(config)# clear configure auth-prompt
```

Related Commands

auth-prompt	Sets the user authorization prompts.
show running-config auth-prompt	Displays the user authorization prompts.

clear configure banner

To remove all the banners, use the **clear configure banner** command in global configuration mode.

clear configure banner

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to clear banners:

```
hostname(config)# clear configure banner
```

Related Commands

Command	Description
banner	Configures the session, login, or message-of-the-day banner.
show running-config banner	Displays all banners.

clear configure boot

To restore the default boot file and configuration file that the system uses at startup, use the **clear configure boot** command in global configuration mode.

clear configure boot

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

This example shows how to restore the default configuration file:

```
hostname(config)# clear configure boot
```

Related Commands

Command	Description
boot	Configures the session, login, or message-of-the-day banner.
show bootvar	Displays boot file and configuration environment variables.

clear configure ca certificate map

To remove all certificate map entries or to remove a specified certificate map entry, use the **clear configure ca configurate map** command in global configuration mode.

clear configure ca certificate map [*sequence-number*]

Syntax Description

sequence-number	(Optional) Specifies a number for the certificate map rule that you are removing. The range is 1 through 65535.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example removes all certificate map entries.

```
hostname(config)# clear configure ca certificate map
hostname(config)#
```

Related Commands+

Command	Description
crypto ca certificate map	Enters ca certificate map configuration mode.

clear configure class

To clear the resource class configuration, use the **clear configure class** command in global configuration mode.

clear configure class

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	—	—	•

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example clears the class configuration:

```
hostname(config)# clear configure class
```

Related Commands

Command	Description
class	Configures a resource class.
context	Configures a security context.
limit-resource	Sets the resource limit for a class.
member	Assigns a context to a resource class.
show class	Shows the contexts assigned to a class.

clear configure class-map

To remove all class maps, use the **clear configure class-map** command in global configuration mode.

clear configure class-map [**type** {**management** | **regex** | **inspect** [*protocol*]}

Syntax Description

inspect	(Optional) Clears inspection class maps.
management	(Optional) Clears management class maps.
protocol	(Optional) Specifies the type of application map you want to clear. Available types include: • **dns** • **ftp** • **h323** • **http** • **im** • **p2p-donkey** • **sip**
regex	(Optional) Clears regular expression class maps.
type	(Optional) Specifies the type of class map you want to clear. To clear Layer 3/4 class maps, do not specify the type.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To clear the class map for a specific class map name, use the **no** form of the **class-map** command.

Examples

The following example shows how to clear all configured class maps:

```
hostname(config)# clear configure class-map
```

Related Commands

Command	Description
class-map	Applies a traffic class to an interface.
show running-config class-map	Displays the information about the class map configuration.

clear configure client-update

To remove from the configuration the ability to force a client update, use the **clear configure client-update** command in global configuration mode or tunnel-group ipsec-attributes configuration mode.

clear configure client-update

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—
Tunnel-group ipsec-attributes configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	Added tunnel-group ipsec-attributes configuration mode.
9.0(1)	Support for multiple context mode was added.

Examples

The following example entered in global configuration mode, removes the client-update capability from the configuration:

```
hostname(config)# clear configure client-update
hostname(config)#
```

The following example entered in tunnel-group ipsec-attributes configuration mode, removes the client-update capability from the configuration of the tunnel group named test:

```
hostname(config)# tunnel-group test ipsec-attributes
hostname(config-tunnel-ipsec)# clear configure client-update
hostname(config-tunnel-ipsec)#
```

Related Commands

Command	Description
client-update	Configures client update.
show running-config client-update	Shows the current client-update configuration.

clear configure clock

To clear the clock configuration, use the **clear configure clock** command in global configuration mode.

clear configure clock

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was changed from **clear clock**.

Usage Guidelines

This command clears all **clock** configuration commands. The **clock set** command is not a configuration command, so this command does not reset the clock. To reset the clock, you need to set a new time for the **clock set** command.

Examples

The following example clears all clock commands:

```
hostname# clear configure clock
```

Related Commands

Command	Description
clock set	Manually sets the time.
clock summer-time	Sets the date range to show daylight saving time.
clock timezone	Sets the time zone.

clear configure cluster

To clear the cluster configuration, and leave the cluster, use the **clear configure cluster** command in global configuration mod.

clear configure cluster

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

If you want to leave a cluster (clustering was enabled on this unit), in practice, you need to clear or replace your entire configuration, not just remove the cluster configuration. If you do not clear your configuration, you will have overlapping interface configurations with existing cluster members.

You cannot make configuration changes while clustering is enabled on a slave unit. First disable clustering by entering **no enable** in cluster group configuration mode.

You must use the console port or ASDM to enable or disable clustering. You cannot use Telnet or SSH.

Examples

The following example removes the cluster configuration:

```
hostname(config)# clear configuration cluster
```

Related Commands

Command	Description
cluster group	Enters cluster configuration mode.
show running-config cluster	Shows the cluster configuration.

clear configure command-alias

To remove all non-default command aliases, use the **clear configure command-alias** command in global configuration mode.

clear configure command-alias

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to remove all non-default command aliases:

```
hostname(config)# clear configure command-alias
```

Related Commands

Command	Description
command-alias	Creates a command alias.
show running-config command-alias	Displays all nondefault command aliases.

clear configure compression

To reset the global compression configuration to the default (all compression techniques enabled), use the **clear configure compression** command in global configuration mode.

clear configure compression

Syntax Description

This command has no arguments or keywords.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•		—

Command History

Release	Modification
7.1(1)	This command was introduced.

Examples

The following example clear the compression configuration:

```
hostname(config)# clear configure compression
```

Related Commands

Command	Description
compression	Enables compression for all SVC, WebVPN, and port forwarding connections.
svc compression	Enables compression of HTTP data over an SVC connection for a specific group or user.

clear configure console

To reset the console connection settings to defaults, use the **clear configure console** command in global configuration mode.

clear configure console

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to reset the console connection settings to defaults:

```
hostname(config)# clear configure console
```

Related Commands

Command	Description
console timeout	Sets the idle timeout for a console connection to the ASA.
show running-config console timeout	Displays the idle timeout for a console connection to the ASA.

clear configure context

To clear all context configurations in the system configuration, use the **clear configure context** command in global configuration mode.

clear configure context [**noconfirm**]

Syntax Description

noconfirm	(Optional) Removes all contexts without prompting you for confirmation. This option is useful for automated scripts.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command lets you remove all contexts, including the admin context. The admin context cannot be removed using the **no context** command, but can be removed using the **clear configure context** command.

Examples

The following example removes all contexts from the system configuration, and does not confirm the deletion:

```
hostname(config)# clear configure context noconfirm
```

Related Commands

Command	Description
admin-context	Sets the admin context.
changeto	Changes between contexts or the system execution space.
context	Creates a security context in the system configuration and enters context configuration mode.

Command	Description
mode	Sets the context mode to single or multiple.
show context	Shows a list of contexts (system execution space) or information about the current context.

clear configure coredump

To remove the coredump filesystem and its contents from your system, enter the **clear configure coredump** command in global configuration mode.

clear configure coredump

Syntax Description

This command has no arguments or keywords.

Defaults

By default, coredumps are not enabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

This command removes the coredump file system and its contents from your system. It also clears the coredump log. This command disables coredump and changes the configuration. You must save the configuration after performing this operation. Archive any coredump files that you have collected on your ASA that you would like to analyze, before issuing this command.

This command specifically deletes the following from the configured coredump media (disk0:, disk1:, flash:)

- contents of the coredumpfsys directory
- coredumpfsys directory
- coredumpfsysimage.bin file
- coredump.log file from the coredumpinfo directory

Examples

The following example removes the coredump file system and its contents from the system:

```
hostname(config)# clear configure coredump
```

Related Commands

Command	Description
coredump enable	Enables the coredump feature.
clear coredump	Removes any coredumps currently stored on the coredump file system and clears the coredump log. Does not touch the coredump file system itself and does not change or affect the coredump configuration.
show coredump filesystem	Displays files on the coredump file system, and indicates how full it might be.
show coredump log	Shows the coredump log.

clear configure crypto

To remove the entire crypto configuration, including IPsec, crypto maps, dynamic crypto maps, CA trustpoints, all certificates, certificate map configurations, and ISAKMP, use the **clear configure crypto** command in global configuration mode. To remove specific configurations, use this command with keywords as shown in the syntax. Take caution when using this command.

clear configure crypto [**ca** | **dynamic-map** | **engine** | **ikev1** | **ikev2** | **ipsec-client** | **iskmp** | **map**]

Syntax Description

ca	Removes certification authority policy.
dynamic-map	Removes dynamic crypto map configuration.
engine	Removes crypto engine configuration.
ikev1	Removes the IPsec IKEv1 configuration.
ikev2	Removes the IPsec IKEv2 configuration.
ipsec-client	Removes IPsec configuration.
isakmp	Removes ISAKMP configuration.
map	Removes crypto map configuration.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.4(1)	The **ikev1** and **ikev2** keywords were added.
9.0(1)	Support for multiple context mode was added.

Examples

The following example issued in global configuration mode, removes all of the crypto configuration from the ASA:

```
hostname(config)# clear configure crypto
hostname(config)#
```

Related Commands

Command	Description
clear configure crypto dynamic-map	Clears all or specified crypto dynamic maps from the configuration.
clear configure crypto map	Clears all or specified crypto maps from the configuration.
clear configure isakmp policy	Clears all ISAKMP policy configuration.
show running-config crypto	Displays the entire crypto configuration, including IPsec, crypto maps, dynamic crypto maps, and ISAKMP.

clear configure crypto ca trustpoint

To remove all trustpoints from the configuration, use the **clear configure crypto ca trustpoint** command in global configuration mode.

clear configure crypto ca trustpoint

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example entered in global configuration mode, removes all trustpoints from the configuration:

```
hostname(config)# clear configure crypto ca trustpoint
hostname(config)#
```

Related Commands

Command	Description
crypto ca trustpoint	Enters the trustpoint configuration level for the indicated trustpoint.

clear configure crypto ca trustpool

To reset the trustpool policy to its default values, use the **clear configure crypto ca trustpool** command in global configuration mode.

clear configure crypto ca trustpool

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

The trustpool is returned to its default policy values, but the certificate content of the trustpool is not changed.

clear configure crypto dynamic-map

To remove all or specified crypto dynamic maps from the configuration, use the **clear configure crypto dynamic-map** command in global configuration.

clear configure crypto dynamic-map *dynamic-map-name dynamic-seq-num*

Syntax Description

dynamic-map-name	Specifies the name of a specific crypto dynamic map.
dynamic-seq-num	Specifies the sequence number of the crypto dynamic map.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Examples

The following example entered in global configuration mode, removes the crypto dynamic map mymaps with sequence number 3 from the configuration:

```
hostname(config)# clear configure crypto dynamic-map mymaps 3
hostname(config)#
```

Related Commands

Command	Description
clear configure crypto map	Clears the configuration of all or specified crypto maps.
show running-config crypto dynamic-map	Displays all the active configuration for all dynamic crypto maps.
show running-config crypto map	Displays all the active configuration for all crypto maps.

clear configure crypto engine

To switch large modulus operations from hardware to software, use the **clear configure crypto engine** command in global configuration mode.

clear configure crypto engine

Syntax Description

This command has no arguments or keywords.

Defaults

By default, the ASA performs large modulus operations in the software.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.2(3)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

This command is available only with ASA models 5510, 5520, 5540, and 5550. It switches large modulus operations to software and removes the **crypto engine large-mod-accel** command from the running configuration.

This command is equivalent to the **no crypto engine large-mod-accel** command. It applies only if the configuration contains a **crypto engine large-mod-accel** command. To determine whether the configuration contains this command, enter the **show running-config crypto engine** command.

We recommend that you use the **clear configure crypto engine** command during a low-use or maintenance period to minimize a temporary packet loss that can occur during the transition of processing from hardware to software.

Examples

The following example removes the **crypto engine large-mod-accel** command from the running configuration and switches large modulus operations from hardware to sofware:

```
hostname(config)# clear configure crypto engine
```

Related Commands

Command	Description
show running-config crypto engine	Shows if large modulus operations have been switched to hardware.
crypto engine large-mod-accel	Switches large modulus operations from software to hardware.

clear configure crypto ikev1

To remove all of the IKEv1 configuration, use the **clear configure crypto ikev1** command in global configuration mode.

clear configure crypto ikev1 policy *priority*

Syntax Description

priority	Specifies the priority number of the IKEv1 policy to clear.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
8.4(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Examples

The following command, issued in global configuration mode, removes all of the IKEv1 configuration for priority 1 from the ASA:

```
hostname(config)# clear configure crypto ikev1 policy priority 1
hostname(config)#
```

Related Commands

Command	Description
clear configure crypto isakmp policy	Clears all ISAKMP policy configuration.
crypto isakmp enable	Enables ISAKMP negotiation on the interface on which the IPsec peer communicates with the ASA.
show crypto isakmp stats	Displays runtime statistics.
show crypto isakmp sa	Displays IKE runtime SA database with additional information.
show running-config crypto isakmp	Displays all the active configuration.

clear configure crypto ikev2

To remove all of the IKEv2 configuration, use the **clear configure crypto ikev2** command in global configuration mode.

clear configure crypto ikev2 policy *priority*

Syntax Description

priority	Specifies the IKEv2 priority to clear.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
8.4(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Examples

The following command, issued in global configuration mode, removes all of the IKEv2 policy configuration for priority 1 from the ASA:

```
hostname(config)# clear configure crypto ikev2 policy priority 1
hostname(config)#
```

Related Commands

Command	Description
clear configure crypto isakmp policy	Clears all ISAKMP policy configuration.
crypto isakmp enable	Enables ISAKMP negotiation on the interface on which the IPsec peer communicates with the ASA.
show crypto isakmp stats	Displays runtime statistics.
show crypto isakmp sa	Displays IKE runtime SA database with additional information.
show running-config crypto isakmp	Displays all the active configuration.

clear configure crypto ipsec

To remove all of the IPsec configuration, use the **clear configure crypto isakmp** command in global configuration mode.

clear configure crypto ipsec ikev1 transform-set *transform*

Syntax Description

ikev1	Specifies you are clearing IKEv1 configuration.
transform-set	Specifies you are clearing a transform set configured for IKEv1.
transform	Specifies the transform to clear.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	The command was introduced.
8.4(1)	The **ikev1** keyword was introduced.
9.0(1)	Support for multiple context mode was added.

Examples

The following command, issued in global configuration mode, removes the IKEv1 transform *secure_VPN* from the ASA:

```
hostname(config)# clear configure crypto ipsec ikev1 transform-set secure_VPN
hostname(config)#
```

Related Commands

Command	Description
crypto isakmp enable	Enables ISAKMP negotiation on the interface on which the IPsec peer communicates with the ASA.
show crypto isakmp stats	Displays runtime statistics.
show crypto isakmp sa	Displays IKE runtime SA database with additional information.
show running-config crypto isakmp	Displays all the active configuration.

clear configure crypto isakmp

To remove all of the ISAKMP configuration, use the **clear configure crypto isakmp** command in global configuration mode.

clear configure crypto isakmp

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	The **clear configure isakmp** command was introduced.
7.2(1)	The **clear configure isakmp** command was deprecated. The **clear configure crypto isakmp** command replaced it.
9.0(1)	Support for multiple context mode was added.

Examples

The following command, issued in global configuration mode, removes all of the ISAKMP configuration from the ASA:

```
hostname(config)# clear configure crypto isakmp
hostname(config)#
```

Related Commands

Command	Description
crypto isakmp enable	Enables ISAKMP negotiation on the interface on which the IPsec peer communicates with the ASA.
show crypto isakmp stats	Displays runtime statistics.
show crypto isakmp sa	Displays IKE runtime SA database with additional information.
show running-config crypto isakmp	Displays all the active configuration.

clear configure crypto map

To remove all or specified crypto maps from the configuration, use the **clear configure crypto map** command in global configuration.

clear configure crypto map *map-name seq-num*

Syntax Description

map-name	Specifies the name of a specific crypto map.
seq-num	Specifies the sequence number of the crypto map.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Examples

The following example entered in global configuration mode, removes the crypto map mymaps with sequence number 3 from the configuration:

```
hostname(config)# clear configure crypto map mymaps 3
hostname(config)#
```

Related Commands

Command	Description
clear configure crypto dynamic-map	Clears the configuration of all or specified crypto dynamic maps.
crypto map interface	Applies a crypto map to an interface.
show running-config crypto map	Displays the active configuration for all crypto maps.
show running-config crypto dynamic-map	Displays the active configuration for all dynamic crypto maps.

clear configure ctl-file

To clear configured CTL file instances, use the **clear configure ctl-file** command in global configuration mode.

clear configure ctl [*ctl_name*]

Syntax Description

ctl_name	(Optional) Specifies the name of the CTL instance.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
8.0(4)	The command was introduced.

Examples

The following example shows the use of the **clear configure ctl-file** command to clear configured CTL file instances:

```
hostname# clear configure ctl asa_phone_proxy asa_ctl
```

Related Commands

Command	Description
ctl-file (global)	Specifies the CTL file to create for phone proxy configuration or the CTL file to parse from flash memory.
ctl-file (phone-proxy)	Specifies the CTL file to use for phone proxy configuration.
phone-proxy	Configures the phone proxy instance.

clear configure ctl-provider

To remove all configured Certificate Trust List (CTL) provider instances, use the **clear configure ctl-provider** command in global configuration mode.

clear configure ctl-provider

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Examples

The following example removes all configured Certificate Trust List (CTL) provider instances:

```
hostname# clear configure ctl-provider
```

Related Commands

Command	Description
ctl	Parses the CTL file from the CTL client and installs trustpoints.
ctl-provider	Configures a CTL provider instance in CTL provider mode.
export	Specifies the certificate to be exported to the client.
service	Specifies the port to which the CTL provider listens.

clear configure cts

To clear the configuration for integrating the ASA with Cisco TrustSec, use the **clear configure cts** command in global configuration mode. The command removes the **cts** command statements from the ASA configuration.

clear configure cts

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

There is no undo.

Examples

The following example shows how to clear the configuration to integrate the ASA with Cisco TrustSec:

```
hostname(config)# clear configure cts
```

Related Commands

Command	Description
clear configure all	Clears the entire running configuration on the ASA.
clear cts	Clears data used by the ASA when integrated with Cisco TrustSec.
cts sxp enable	Enables the SXP protocol on the ASA.

clear configure ddns

To clear all DDNS commands, use the **clear configure ddns** command in global configuration mode.

clear configure ddns

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example clears all DDNS commands:

```
hostname(config)# clear configure ddns
```

Related Commands

Command	Description
ddns (DDNS-update-method mode)	Specifies a DDNS update method type for a created DDNS method.
ddns update (interface config mode)	Associates a ASA interface with a DDNS update method or a DDNS update hostname.
ddns update method (global config mode)	Creates a method for dynamically updating DNS resource records.
show ddns update interface	Displays the interfaces associated with each configured DDNS method.
show ddns update method	Displays the type and interval for each configured DDNS method.
show running-config ddns	Displays the type and interval of all configured DDNS methods in the running configuration.

clear configure dhcpd

To clear all of the DHCP server commands, binding, and statistics, use the **clear configure dhcpd** command in global configuration mode.

clear configure dhcpd

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was changed from **clear dhcpd** to **clear configure dhcpd**.

Usage Guidelines

The **clear configure dhcpd** command clears all of the **dhcpd** commands, bindings, and statistical information. To clear only the statistical counters or binding information, use the **clear dhcpd** command.

Examples

The following example shows how to clear all **dhcpd** commands:

```
hostname(config)# clear configure dhcpd
```

Related Commands

Command	Description
clear dhcpd	Clears the DHCP server bindings and statistical counters.
show running-config dhcpd	Displays the current DHCP server configuration.

clear configure dhcprelay

To clear the entire DHCP relay configuration, use the **clear configure dhcprelay** command in global configuration mode.

clear configure dhcprelay [**global | interface** [*ifc*]]

Syntax Description

global	Clears the global DHCP relay agent configuration.
ifc	Clears the DHCP relay configuration on a specified interface.
interface	Clears the DHCP relay agent configuration on all interfaces.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was changed from **clear dhcprelay** to **clear configure dhcprelay**.
9.1(2)	The **global**, **interface**, and *ifc* options were added.

Usage Guidelines

The c**lear configure dhcprelay** command clears the DHCP relay configuration. To clear only the DHCP statistical counters, use the **clear dhcprelay statistics** command.

The **vlan** option for Catalyst 6500 VLANs is available when you clear the DHCP relay configuration on a per-interface basis. You can clear the DHCP relay configuration on a per-interface basis by including the interface name (*ifc* option).

Examples

The following example shows how to clear the DHCP relay configuration:

```
hostname(config)# clear configure dhcprelay
```

The following example shows how to clear the global DHCP relay configuration:

```
hostname(config)# clear configure dhcprelay global
```

The following example shows how to clear the DHCP relay configuration on a per-interface basis:

```
hostname(config)# clear configure dhcprelay interface
```

Related Commands

Command	Description
clear dhcprelay statistics	Clears the DHCP relay agent statistic counters.
debug dhcprelay	Displays debugging information for the DHCP relay agent.
show dhcprelay statistics	Displays DHCP relay agent statistics.
show running-config dhcprelay	Displays the current DHCP relay agent configuration.

clear configure dns

To clear all DNS commands, use the **clear configure dns** command in global configuration mode.

clear configure dns

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example clears all DNS commands:

```
hostname(config)# clear configure dns
```

Related Commands

Command	Description
dns domain-lookup	Enables the ASA to perform a name lookup.
dns name-server	Configures a DNS server address.
dns retries	Specifies the number of times to retry the list of DNS servers when the ASA does not receive a response.
dns timeout	Specifies the amount of time to wait before trying the next DNS server.
show dns-hosts	Shows the DNS cache.

clear configure dynamic-access-policy-config

To clear the DAP configuration, use the **clear configure dynamic-access-policy-config** command in dynamic-access-policy-record configuration mode.

clear config dynamic-access-policy-config *name*

Syntax Description

name	A string that specifies the name of the DAP configuration file.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Dynamic-access-policy-record configuration	•	•	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Examples

The following example shows how to set a priority of 15 for the DAP record called Finance.

```
hostname (config) config-dynamic-access-policy-record Finance
hostname(config-dynamic-access-policy-record)# priority 15
hostname(config-dynamic-access-policy-record)#
```

Related Commands

Command	Description
dynamic-access-policy-record	Creates a DAP record.
show running-config dynamic-access-policy-record [*name*]	Displays the running configuration for all DAP records, or for the named DAP record.

clear config dynamic-access-policy-record

To clear a DAP record, use the **clear config dynamic-access-policy-record** command in global configuration mode with the name of the record. To clear all DAP records, use the **no** form of this command.

clear config dynamic-access-policy-record *name*

Syntax Description

name	Specifies the name of the DAP record. The name can be up to 64 characters long and cannot contain spaces.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Examples

The following example shows how to clear a DAP record named Finance.

```
hostname(config)# clear configure dynamic-access-policy-record Finance
hostname(config-dynamic-access-policy-record)#
```

Related Commands

Command	Description
dynamic-access-policy-record [*name*]	Creates a named DAP record.
dynamic-access-policy-config url	Configures the DAP selection configuration file.
show running-config dynamic-access-policy-record [*name*]	Displays the running configuration for all DAP records, or for the named DAP record.

clear configure dynamic-filter

To remove the all dynamic-filter commands, use the **clear configure dynamic-filter** command in global configuration mode.

clear configure dynamic-filter

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
8.2(1)	This command was introduced.

Examples

The following example clears the dynamic-filter configuration:

```
hostname(config)# clear configure dynamic-filter
```

Related Commands

Command	Description
address	Adds an IP address to the blacklist or whitelist.
clear dynamic-filter dns-snoop	Clears Botnet Traffic Filter DNS snooping data.
clear dynamic-filter reports	Clears Botnet Traffic filter report data.
clear dynamic-filter statistics	Clears Botnet Traffic filter statistics.
dns domain-lookup	Enables the ASA to send DNS requests to a DNS server to perform a name lookup for supported commands.
dns server-group	Identifies a DNS server for the ASA.
dynamic-filter ambiguous-is-black	Treats greylisted traffic as blacklisted traffic for action purposes.
dynamic-filter blacklist	Edits the Botnet Traffic Filter blacklist.
dynamic-filter database fetch	Manually retrieves the Botnet Traffic Filter dynamic database.
dynamic-filter database find	Searches the dynamic database for a domain name or IP address.

Command	Description
dynamic-filter database purge	Manually deletes the Botnet Traffic Filter dynamic database.
dynamic-filter drop blacklist	Automatically drops blacklisted traffic.
dynamic-filter enable	Enables the Botnet Traffic Filter for a class of traffic or for all traffic if you do not specify an access list.
dynamic-filter updater-client enable	Enables downloading of the dynamic database.
dynamic-filter use-database	Enables use of the dynamic database.
dynamic-filter whitelist	Edits the Botnet Traffic Filter whitelist.
inspect dns dynamic-filter-snoop	Enables DNS inspection with Botnet Traffic Filter snooping.
name	Adds a name to the blacklist or whitelist.
show asp table dynamic-filter	Shows the Botnet Traffic Filter rules that are installed in the accelerated security path.
show dynamic-filter data	Shows information about the dynamic database, including when the dynamic database was last downloaded, the version of the database, how many entries the database contains, and 10 sample entries.
show dynamic-filter dns-snoop	Shows the Botnet Traffic Filter DNS snooping summary, or with the **detail** keyword, the actual IP addresses and names.
show dynamic-filter reports	Generates reports of the top 10 botnet sites, ports, and infected hosts.
show dynamic-filter statistics	Shows how many connections were monitored with the Botnet Traffic Filter, and how many of those connections match the whitelist, blacklist, and greylist.
show dynamic-filter updater-client	Shows information about the updater server, including the server IP address, the next time the ASA will connect with the server, and the database version last installed.
show running-config dynamic-filter	Shows the Botnet Traffic Filter running configuration.

clear configure established

To remove all established commands, use the **clear configure established** command in global configuration mode.

clear configure established

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	The **configure** keyword was added.

Usage Guidelines

To remove an established connection created by the **established** command, enter the **clear xlate** command.

Examples

This example shows how to remove established commands:

```
hostname(config)# clear configure established
```

Related Commands

Command	Description
established	Permits return connections on ports that are based on an established connection.
show running-config established	Displays the allowed inbound connections that are based on established connections.
clear xlate	Clears the current translation and connection slot information.

clear configure failover

To remove **failover** commands from the configuration and restore the defaults, use the **clear configure failover** command in global configuration mode.

clear configure failover

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was changed from **clear failover** to **clear configure failover**.

Usage Guidelines

This command clears all **failover** commands from the running configuration and restores the defaults. If you use the **all** keyword with the **show running-config failover** command, you will see the default failover configuration.

The **clear configure failover** command is not available in a security context in multiple context mode; you must enter the command in the system execution space.

Examples

The following example clears all failover commands from the configuration:

```
hostname(config)# clear configure failover
hostname(config)# show running-configuration failover
no failover
```

Related Commands

Command	Description
show running-config failover	Displays the **failover** commands in the running configuration.

clear configure filter

To clear the URL, FTP, and HTTPS filtering configuration, use the **clear configure filter** command in global configuration mode.

clear configure filter

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **clear configure filter** command clears the URL, FTP, and HTTPS filtering configuration.

Examples

The following example clears the URL, FTP, and HTTPS filtering configuration:

```
hostname(config)# clear configure filter
```

Related Commands

Commands	Description
filter ftp	Identifies the FTP traffic to be filtered by a URL filtering server.
filter https	Identifies the HTTPS traffic to be filtered by a Websense server.
filter url	Directs traffic to a URL filtering server.
show running-config filter	Displays the filtering configuration.
url-server	Identifies an N2H2 or Websense server for use with the **filter** command.

clear configure fips

To clear the system or module FIPS configuration information stored in NVRAM, use the **clear configure fips** command in global configuration mode.

clear configure fips

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.0(4)	This command was introduced.

Examples

```
hostname(config)# clear configure fips
```

Related Commands

Command	Description
crashinfo console disable	Disables the reading, writing and configuration of crash write information to flash.
fips enable	Enables or disables policy checking to enforce FIPS compliance on the system or module.
fips self-test poweron	Executes power-on self-tests.
show crashinfo console	Reads, writes, and configures crash write to flash.
show running-config fips	Displays the FIPS configuration that is running on the ASA.

clear configure firewall

To set the firewall mode to the default routed mode, use the **clear configure firewall** command in global configuration mode.

clear configure firewall

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example sets the firewall mode to the default:

```
hostname(config)# clear configure firewall
```

Related Commands

Command	Description
arp	Adds a static ARP entry.
firewall transparent	Sets the firewall mode to transparent.
show arp statistics	Shows ARP statistics.
show running-config arp	Shows the current configuration of the ARP timeout.

clear configure fixup

To clear the fixup configuration, use the **clear configure fixup** command in global configuration mode.

clear configure fixup

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **clear configure fixup** command removes the fixup configuration.

Examples

The following example clears the fixup configuration:

```
hostname# clear configure fixup
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
policy-map	Associates a class map with specific security actions.

clear configure flow-export

To clear flow-export configurations that are associated with NetFlow data, use the **clear configure flow-export** command in global configuration mode.

clear configure flow-export [destination]

Syntax Description

destination	Clears only the destination-related flow-export configuration.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.1(1)	This command was introduced.

Usage Guidelines

The **destination** keyword clears only the destination-related flow-export configuration; the other flow-export configurations still remain.

Examples

The following example show how to clear all flow-export configurations, including destinations:

```
hostname(config)# clear configure flow-export
```

The following example shows how to clear only the destination-related flow-export configuration:

```
hostname(config)# clear configure flow-export destination
```

Related Commands

Commands	Description
flow-export destination *interface-name ipv4-address | hostname udp-port*	Specifies the IP address or hostname of the NetFlow collector, and the UDP port on which the NetFlow collector is listening.
flow-export template timeout-rate *minutes*	Controls the interval at which the template information is sent to the NetFlow collector.
logging flow-export-syslogs enable	Enables syslog messages after you have entered the **logging flow-export-syslogs disable** command, and the syslog messages that are associated with NetFlow data.
show flow-export counters	Displays all runtime counters in NetFlow.

clear configure fragment

To reset all the IP fragment reassembly configurations to defaults, use the **clear configure fragment** command in global configuration mode.

clear configure fragment [*interface*]

Syntax Description

interface	(Optional) Specifies the ASA interface.

Defaults

If an *interface* is not specified, the command applies to all interfaces.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	The **configure** keyword and optional *interface* argument were added. The command was also separated into two commands, **clear fragment** and **clear configure fragment**, to separate clearing of the configuration data from the operational data.

Usage Guidelines

The **clear configure fragment** command resets all the IP fragment reassembly configurations to defaults. In addition, the the **chain**, **size**, and **timeout** keywords are reset to their default values, which are as follows:

- **chain** is 24 packets
- **size** is 200
- **timeout** is 5 seconds

Examples

This example shows how to reset all the IP fragment reassembly configurations to their defaults:

```
hostname(config)# clear configure fragment
```

Related Commands

Command	Description
clear fragment	Clears the operational data of the IP fragment reassembly module.
fragment	Provides additional management of packet fragmentation and improves compatibility with the NFS.

Command	Description
show fragment	Displays the operational data of the IP fragment reassembly module.
show running-config fragment	Displays the IP fragment reassembly configuration.

clear configure ftp

To clear the FTP configuration, use the **clear configure ftp** command in global configuration mode.

clear configure ftp

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **clear configure ftp** command clears the FTP configuration.

Examples

The following example clears the FTP configuration:

```
hostname# clear configure ftp
```

Related Commands

Commands	Description
filter ftp	Identifies the FTP traffic to be filtered by a URL filtering server.
filter https	Identifies the HTTPS traffic to be filtered by a Websense server.
filter url	Directs traffic to a URL filtering server.
show running-config filter	Displays the filtering configuration.
url-server	Identifies an N2H2 or Websense server for use with the **filter** command.

clear configure global

To remove the **global** commands from the configuration, use the **clear configure global** command in global configuration mode.

clear configure global

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	Added keyword **configure**.

Examples

The following example shows how to remove the **global** commands from the configuration:

```
hostname(config)# clear configure global
```

Related Commands

Command	Description
global	Creates entries from a pool of global addresses.
show running-config global	Displays the **global** commands in the configuration.

clear configure group-delimiter

To disable group-name parsing for tunnel group names from the user names that are received when tunnels are being negotiated, use the **clear configure group-delimiter** command in global configuration mode.

clear config group-delimiter

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The delimiter is used to parse tunnel group names from usernames when tunnels are negotiated. If no delimiter is specified, group-name parsing is disabled.

Examples

The following example entered in global configuration mode, removes the group delimiter from the configuration:

```
hostname(config)# clear config group-delimiter
hostname(config)#
```

Related Commands

Command	Description
group-delimiter	Enables group-name parsing and specifies the group delimiter for an IPsec remote access tunnel group.
show running-config group-delimiter	Shows the current configured group delimiter.

clear configure group-policy

To remove the configuration for a particular group policy, use the **clear configure group-policy** command in global configuration mode, and append the name of the group policy. To remove all group-policy commands from the configuration except the default group policy, use this command without arguments.

clear configure group-policy [*name*]

Syntax Description

name	(Optional) Specifies the name of the group policy.

Defaults

Removes all group-policy commands from the configuration, except the default group policy.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Examples

The following example shows how to clear the configuration for the group policy named FirstGroup.

```
hostname(config)# clear configure group-policy FirstGroup
```

Related Commands

Command	Description
group-policy	Creates, edits, or removes a group policy.
group-policy attributes	Enters group-policy attributes configuration mode, which lets you configure AVPs for a specified group policy.
show running-config group-policy	Displays the running configuration for a particular group policy or for all group policies.

clear configure hostname

To reset the hostname to the default, use the **clear configure hostname** command in global configuration mode.

clear configure hostname

Syntax Description

This command has no arguments or keywords.

Defaults

The default value depends on your platform.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example clears the hostname:

```
hostname(config)# clear configure hostname
```

Related Commands

Command	Description
banner	Sets a login, message of the day, or enable banner.
domain-name	Sets the default domain name.
hostname	Sets the hostname for the ASA.

clear configure hpm

To clear the HPM configuration, use the **clear configure hpm** command in global configuration mode.

clear configure hpm

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.3(1)	This command was introduced.

Examples

The following example clears the HPM configuration, and restores the default:

```
hostname(config)# clear configure hpm
```

Related Commands

Command	Description
hpm topn enable	Enables top hosts reporting in ASDM.
show running-config hpm	Shows the HPM configuration.

clear configure http

To disable the HTTP server and to remove configured hosts that can access the HTTP server, use the **clear configure http** command in global configuration mode.

clear configure http

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to clear the HTTP configuration:

```
hostname(config)# clear configure http
```

Related Commands

Command	Description
http	Specifies hosts that can access the HTTP server by IP address and subnet mask. Specifies the ASA interface through which the host accesses the HTTP server.
http authentication-certificate	Requires authentication via certificate from users who are establishing HTTPS connections to the ASA.
http redirect	Specifies that the ASA redirect HTTP connections to HTTPS.
http server enable	Enables the HTTP server.
show running-config http	Displays the hosts that can access the HTTP server, and whether or not the HTTP server is enabled.

clear configure flow-export through clear configure zonelabs-integrity Commands

clear configure flow-export

To clear flow-export configurations that are associated with NetFlow data, use the **clear configure flow-export** command in global configuration mode.

clear configure flow-export [**destination**]

Syntax Description

destination	Clears only the destination-related flow-export configuration.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.1(1)	This command was introduced.
9.1(2)	An error message was added for a specific use case.

Usage Guidelines

The **destination** keyword clears only the destination-related flow-export configuration; the other flow-export configurations still remain.

In clustering, when you remove the destination flow-export configuration from the master unit, this configuration is also removed from the slave units.

As long as at least one flow-export destination is being referenced in the **flow-export event-type** command, entering the **clear configure flow-export** [**destination**] command fails and none of the flow-export configurations are changed or removed.

The following error message appears in this case:

```
ERROR: "Some destinations may be in use.  Remove references before attempting to clear
flow-export configuration"
```

Examples

The following example show how to clear all flow-export configurations, including destinations:

```
hostname(config)# clear configure flow-export
```

The following example shows how to clear only the destination-related flow-export configuration:

```
hostname(config)# clear configure flow-export destination
```

Related Commands

Commands	Description
flow-export destination	Specifies the IP address or hostname of the NetFlow collector, and the UDP port on which the NetFlow collector is listening.
flow-export template timeout-rate	Controls the interval at which the template information is sent to the NetFlow collector.
logging flow-export-syslogs enable	Enables syslog messages after you have entered the **logging flow-export-syslogs disable** command, and the syslog messages that are associated with NetFlow data.
show flow-export counters	Displays all runtime counters in NetFlow.

clear configure icmp

To clear the configured access rules for ICMP traffic, use the **clear configure icmp** command in global configuration mode.

clear configure icmp

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **clear configure icmp** command clears the configured access rules for ICMP traffic.

Examples

The following example clears the clear configured access rules for ICMP traffic:

```
hostname# clear configure icmp
```

Related Commands

Commands	Description
clear configure icmp	Clears the ICMP configuration.
debug icmp	Enables the display of debug information for ICMP.
show icmp	Displays ICMP configuration.
timeout icmp	Configures the idle timeout for ICMP.

clear configure imap4s

To remove all IMAP4S commands from the configuration and revert to default values, use the **clear configure imap4s** command in global configuration mode.

clear configure imap4s

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to remove the IMAP4S configuration:

```
hostname(config)# clear configure imap4s
hostname(config)#
```

Related Commands

Command	Description
show running-configuration imap4s	Displays the running configuration for IMAP4S.
imap4s	Creates or edits an IMAP4S e-mail proxy configuration.

clear configure interface

To clear the interface configuration, use the **clear configure interface** command in global configuration mode.

clear configure interface [*physical_interface*[**.***subinterface*] | *mapped_name* | *interface_name*]

Syntax Description

interface_name	(Optional) Identifies the interface name set with the **nameif** command.
mapped_name	(Optional) In multiple context mode, identifies the mapped name if it was assigned using the **allocate-interface** command.
physical_interface	(Optional) Identifies the interface ID, such as **gigabitethernet0/1**. See the **interface** command for accepted values.
subinterface	(Optional) Identifies an integer between 1 and 4294967293 designating a logical subinterface.

Defaults

If you do not specify an interface, the ASA clears all interface configuration.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was changed from **clear interface**. This command was also modified to include the new interface numbering scheme.

Usage Guidelines

When you clear the interface configuration for main physical interfaces, the ASA uses the default settings.

You cannot use the interface name in the system execution space, because the **nameif** command is only available within a context. Similarly, if you mapped the interface ID to a mapped name using the **allocate-interface** command, you can only use the mapped name in a context.

Examples

The following example clears the GigabitEthernet0/1 configuration:

```
hostname(config)# clear configure interface gigabitethernet0/1
```

The following example clears the inside interface configuration:

```
hostname(config)# clear configure interface inside
```

The following example clears the int1 interface configuration in a context. “int1” is a mapped name:

```
hostname/contexta(config)# clear configure interface int1
```

The following example clears all interface configuration:

```
hostname(config)# clear configure interface
```

Related Commands

Command	Description
allocate-interface	Assigns interfaces and subinterfaces to a security context.
clear interface	Clears counters for the **show interface** command.
interface	Configures an interface and enters interface configuration mode.
show interface	Displays the runtime status and statistics of interfaces.

clear configure interface bvi

To clear the bridge virtual interface configuration, use the **clear configure interface bvi** command in global configuration mode.

clear configure interface bvi *bridge_group_number*

Syntax Description

bridge_group_number	Specifies the bridge group number as an integer between 1 and 100.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	—	•	•	•	—

Command History

Release	Modification
8.4(1)	We introduced this command.

Examples

The following example clears the interface configuration for bridge group 1:

```
hostname(config)# clear configure interface bvi 1
```

Related Commands

Command	Description
bridge-group	Groups transparent firewall interfaces into a bridge group.
interface	Configures an interface.
interface bvi	Creates a bridge virtual interface.
ip address	Sets the management IP address for a bridge group.
show bridge-group	Shows bridge group information, including member interfaces and IP addresses.
show running-config interface bvi	Shows the bridge group interface configuration.

clear configure ip

To clear all IP addresses set by the **ip address** command, use the **clear configure ip** command in global configuration mode.

clear configure ip

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

In transparent firewall mode, this command clears the management IP address and the management 0/0 IP address, if configured.

If you want to stop all current connections that use the old IP addresses, enter the **clear xlate** command. Otherwise, the connections time out as usual.

Examples

The following example clears all IP addresses:

```
hostname(config)# clear configure ip
```

Related Commands

Command	Description
allocate-interface	Assigns interfaces and subinterfaces to a security context.
clear configure interface	Clears all configuration for an interface.
interface	Configures an interface and enters interface configuration mode.
ip address	Sets the IP address for the interface.
show running-config interface	Displays the interface configuration.

clear configure ip audit

To clear the entire audit policy configuration, use the **clear configure ip audit** command in global configuration mode.

clear configure ip audit [**configuration**]

Syntax Description

configuration	(Optional) You can enter this keyword, but the effect is the same without it.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was changed from **clear ip audit**.

Examples

The following example clears all **ip audit** commands:

```
hostname# clear configure ip audit
```

Related Commands

Command	Description
ip audit attack	Sets the default actions for packets that match an attack signature.
ip audit info	Sets the default actions for packets that match an informational signature.
ip audit interface	Assigns an audit policy to an interface.
ip audit name	Creates a named audit policy that identifies the actions to take when a packet matches an attack signature or an informational signature.
ip audit signature	Disables a signature.

clear configure ip local pool

To remove IP address pools, use the **clear configure ip local pool** command in global configuration mode.

clear ip local pool [*poolname*]

Syntax Description

poolname	(Optional) Specifies the name of the IP address pool.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example removes all IP address pools from the running configuration:

```
hostname(config)# clear config ip local pool
hostname(config)#
```

Related Commands

Command	Description
clear configure ip local pool	Removes all ip local pools.
ip local pool	Configures an IP address pool.

clear configure ipv6 dhcprelay

To clear the IPv6 DHCP relay configuration, use the **clear configure ipv6 dhcprelay** command in global configuration mode.

clear configure ipv6 dhcprelay

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

The **clear configure ipv6 dhcprelay** command clears the IPv6 DHCP relay configuration.

Examples

The following example clears the IPv6 DHCP relay configuration:

```
hostname# clear configure ipv6 dhcprelay
```

Related Commands

Commands	Description
clear ipv6 dhcprelay binding	Clears IPv6 DHCP relay binding entries.
debug ipv6 dhcprelay	Enables the display of debugging information for IPv6 DHCP relay.
show ipv6 dhcprelay binding	Shows IPv6 DHCP relay binding entries.

clear configure ipv6 router

To clear OSPFv3 routing processes, use the **clear configure ipv6 router** command in privileged EXEC mode.

clear configure ipv6 router ospf

Syntax Description

ospf	Clears the OSPFv3 routing processes.

Defaults

By default, this command clears all OSPFv3 routing parameters.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Use the **clear configure ipv6 router** command to clear OSPFv3 processes.

Examples

The following example clears the OSPFv3 processes:

```
hostname# clear configure ipv6 router
```

Related Commands

Command	Description
clear ipv6 ospf	Deletes all IPv6 settings in the OSPFv3 routing process.
debug ospfv3	Provides debugging information for troubleshooting OSPFv3 routing processes.

clear configure ip verify reverse-path

To clear the **ip verify reverse-path** configuration, use the **clear configure ip verify reverse-path** command in global configuration mode.

clear configure ip verify reverse-path

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was changed from **clear ip verify reverse-path**.

Examples

The following example clears the **ip verify reverse-path** configuration for all interfaces:

```
hostname(config)# clear configure ip verify reverse-path
```

Related Commands

Command	Description
clear ip verify statistics	Clears the unicast RPF statistics.
ip verify reverse-path	Enables the unicast RPF feature to prevent IP spoofing.
show ip verify statistics	Shows the unicast RPF statistics.
show running-config ip verify reverse-path	Shows the **ip verify reverse-path** configuration.

clear configure ipv6

To clear the global IPv6 commands from the running configuration, use the **clear configure ipv6** command in global configuration mode.

clear configure ipv6 [**route** | **access-list**]

Syntax Description

access-list	(Optional) Clears the IPv6 access list commands from the running configuration.
route	(Optional) Clears the commands that statically define routes in the IPv6 routing table from the running configuration.

Defaults

Without keywords, this command clears all IPv6 commands from the running configuration.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command only clears the global IPv6 commands from the running configuration; it does not clear the IPv6 commands entered in interface configuration mode.

Examples

The following example shows how to clear statically defined IPv6 routes from the IPv6 routing table:

```
hostname(config)# clear configure ipv6 route
hostname(config)#
```

Related Commands

Command	Description
ipv6 route	Defines a static route in the IPv6 routing table.
show ipv6 route	Displays the contents of the IPv6 routing table.
show running-config ipv6	Displays the IPv6 commands in the running configuration.

clear configure isakmp

To remove all of the ISAKMP configuration, use the **clear configure isakmp** command in global configuration mode.

clear configure isakmp

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	The **clear configure isakmp** command was introduced.
7.2(1)	This command was deprecated. The **clear configure crypto isakmp** command replaced it.
9.0(1)	Support for multiple context mode was added.

Examples

The following example issued in global configuration mode, removes all of the ISAKMP configuration from the ASA:

```
hostname(config)# clear configure isakmp
hostname(config)#
```

Related Commands

Command	Description
clear configure isakmp policy	Clears all ISAKMP policy configuration.
isakmp enable	Enables ISAKMP negotiation on the interface on which the IPsec peer communicates with the ASA.
show isakmp stats	Displays runtime statistics.
show isakmp sa	Displays IKE runtime SA database with additional information.
show running-config isakmp	Displays the active configuration.

clear configure isakmp policy

To remove all of the ISAKMP policy configuration, use the **clear configure isakmp policy** command in global configuration mode.

clear configure isakmp policy *priority*

Syntax Description

priority	Specifies the priority of the ISAKMP priority to be cleared.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	The **clear configure isakmp policy** command was introduced.
7.2(1)	This command was deprecated. The **clear configure crypto isakmp policy** command replaced it.

Examples

The following example removes the ISAKMP policy with priority 3 from the configuration:

```
hostname(config)# clear configure isakmp policy 3
hostname(config)#
```

Related Commands

Command	Description
isakmp enable	Enables ISAKMP negotiation on the interface on which the IPsec peer communicates with the ASA.
show isakmp stats	Displays runtime statistics.
show isakmp sa	Displays IKE runtime SA database with additional information.
show running-config isakmp	Displays the active configuration.

clear configure ldap attribute-map

To remove all the LDAP attribute maps from the running configuration of the ASA, use the **clear configure ldap attribute-map** command in global configuration mode.

clear configure ldap attribute-map

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

Use this command to remove the LDAP attribute maps from the running configuration of the ASA.

Examples

The following example, entered in global configuration mode, removes all LDAP attributes map from the running configuration and then confirms the removal by using the **show running-config ldap attribute-map** command:

```
hostname(config)# clear configuration ldap attribute-map
hostname(config)# show running-config ldap attribute-map
hostname(config)#
```

Related Commands

Command	Description
ldap attribute-map (global config mode)	Creates and names an LDAP attribute map for mapping user-defined attribute names to Cisco LDAP attribute names.
ldap-attribute-map (aaa-server host mode)	Binds an LDAP attribute map to an LDAP server.
map-name	Maps a user-defined LDAP attribute name with a Cisco LDAP attribute name.

Command	Description
map-value	Maps a user-defined attribute value to a Cisco attribute.
show running-config ldap attribute-map	Displays a specific running LDAP attribute map or all running attribute maps.

clear configure logging

To clear logging configuration, use the **clear configure logging** command in global configuration mode.

clear configure logging [**disabled** | **level**]

Syntax Description

disabled	(Optional) Indicates that all disabled syslog messages should be re-enabled. When you use this option, no other logging configuration is cleared.
level	(Optional) Indicates that the severity level assignments for syslog messages should be reset to their default values. When you use this option, no other logging configuration is cleared.

Defaults

With no keywords specified, this command returns all configuration settings to their default values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You can use the **show running-config logging** command to view all logging configuration settings. If you use the **clear configure logging** command without either the **disabled** or **level** keyword, all logging configuration settings are cleared and returned to their default values.

Examples

The following example shows how to clear logging configuration settings. The output of the **show logging** command indicates that all logging features have been disabled.

```
hostname(config)# clear configure logging
hostname(config)# show logging
Syslog logging: disabled
    Facility: 20
    Timestamp logging: disabled
    Standby logging: disabled
    Deny Conn when Queue Full: disabled
    Console logging: disabled
    Monitor logging: disabled
    Buffer logging: disabled
    Trap logging: disabled
    History logging: disabled
    Device ID: disabled
```

```
Mail logging: disabled
ASDM logging: disabled
```

Related Commands

Command	Description
show logging	Displays the enabled logging options.
show running-config logging	Displays the logging-related portion of the running configuration.

clear configure logging rate-limit

To reset the logging rate limit, use the **clear configure logging rate-limit** command in global configuration mode.

clear configure logging rate-limit

Syntax DescriptionT

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(4)	This command was introduced.

Examples

The following example shows how to reset the logging rate limit:

```
hostname(config)# clear configure logging rate-limit
```

After the information is cleared, nothing more displays until the hosts reestablish their connections.

Related Commands

Command	Description
logging rate limit	Limits the rate at which syslog messages are generated.
show running config logging rate-limit	Shows the current logging rate limit setting.

clear configure mac-address-table

To clear the **mac-address-table static** and **mac-address-table aging-time** configuration, use the **clear configure mac-address-table** command in global configuration mode.

clear configure mac-address-table

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	—	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example clears the **mac-address-table static** and **mac-address-table aging-time** configuration:

```
hostname# clear configure mac-address-table
```

Related Commands

Command	Description
firewall transparent	Sets the firewall mode to transparent.
mac-address-table aging-time	Sets the timeout for dynamic MAC address entries.
mac-address-table static	Adds static MAC address entries to the MAC address table.
mac-learn	Disables MAC address learning for an interface.
show mac-address-table	Shows the MAC address table, including dynamic and static entries.

clear configure mac-learn

To clear the **mac-learn** configuration, use the **clear configure mac-learn** command in global configuration mode.

clear configure mac-learn

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	—	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example clears the **mac-learn** configuration:

```
hostname# clear configure mac-learn
```

Related Commands

Command	Description
firewall transparent	Sets the firewall mode to transparent.
mac-address-table static	Adds static MAC address entries to the MAC address table.
mac-learn	Disables MAC address learning for an interface.
show mac-address-table	Shows the MAC address table, including dynamic and static entries.

clear configure mac-list

To remove the indicated list of MAC addresses, previously specified in the **mac-list** command, use the **clear configure mac-list** command in global configuration mode:

clear configure mac-list *id*

Syntax Description

id	A MAC address list name.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was modified to conform to CLI standards.

Usage Guidelines

To remove a list of MAC addresses, use the **clear mac-list** command.

Examples

The following example shows how to clear a MAC address list:

```
hostname(config)# clear configure mac-list firstmaclist
```

Related Commands

Command	Description
mac-list	Adds a list of MAC addresses using a first-match search.
show running-config mac-list	Displays the MAC addresses in the MAC address list indicated by the *id* value.

clear configure management-access

To remove the configuration of an internal interface for management access of the ASA, use the **clear configure management-access** command in global configuration mode.

clear configure management-access

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	The keyword **configure** was added.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

The **management-access** command lets you define an internal management interface using the IP address of the firewall interface specified in the *mgmt_if* argument. (The interface names are defined by the **nameif** command and displayed in quotes, " ", in the output of the **show interface** command.) The **clear configure management-access** command removes the configuration of the internal management interface specified with the **management-access** command.

Examples

The following example removes the configuration of an internal interface for management access of the ASA:

```
hostname(config)# clear configure management-access
```

Related Commands

Command	Description
management-access	Configures an internal interface for management access.
show running-config management-access	Displays the name of the internal interface configured for management access.

clear configure media-termination

To clear the configured media-termination instances from a phone proxy, use the **clear configure media-termination** command in privileged EXEC mode.

clear configure media-termination

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Examples

The following example clears the configured media-termination instances from a phone proxy:

```
hostname# clear configure media-termination
```

Related Commands

Command	Description
media-termination address	Configures the media-termination address for a phone proxy instance.

clear configure monitor-interface

To remove all **monitor-interface** commands from the running configuration and restore the default interface health monitoring, use the **clear configure monitor-interface** command in global configuration mode.

clear configure monitor-interface

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

By default, physical interfaces are monitored for failover. Using the **clear monitor-interface** command clears the **no monitor-interface** commands from the running configuration and restores default interface health monitoring. To view the **monitor-interface** commands in the running configuration, use the **show running-config all monitor-interface** command.

Examples

The following example clears the **monitor-interface** commands from the running configuration:

```
hostname(config)# clear configure monitor-interface
hostname(config)#
```

Related Commands

Command	Description
monitor-interface	Enables health monitoring of a designated interface for failover purposes.
show running-config monitor-interface	Displays the **monitor-interface** commands in the running configuration.

clear configure mroute

To remove the **mroute** commands from the running configuration, use the **clear configure mroute** command in global configuration mode.

clear configure mroute

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to remove the **mroute** commands from the configuration:

```
hostname(config)# clear configure mroute
hostname(config)#
```

Related Commands

Command	Description
mroute	Configures a static multicast route.
show mroute	Displays IPv4 multicast routing table.
show running-config mroute	Displays the **mroute** commands in the running configuration.

clear configure mtu

To clear the configured maximum transmission unit values on all interfaces, use the **clear configure mtu** command in global configuration mode.

clear configure mtu

Syntax Description

This command has no arguments or keywords.

Defaults

Using the **clear configure mtu** command sets the maximum transmission unit to the default of 1500 for all Ethernet interfaces.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	—	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example clears the current maximum transmission unit values on all interfaces:

```
hostname(config)# clear configure mtu
```

Related Commands

Command	Description
mtu	Specifies the maximum transmission unit for an interface.
show running-config mtu	Displays the current maximum transmission unit block size.

clear configure multicast-routing

To remove the **multicast-routing** command from the running configuration, use the **clear configure multicast-routing** command in global configuration mode.

clear configure multicast-routing

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **clear configure multicast-routing** command removes the multicast routing from the running configuration.

Examples

The following example shows how to remove the **multicast-routing** command from the running configuration:

```
hostname(config)# clear configure multicast-routing
```

Related Commands

Command	Description
multicast-routing	Enables multicast routing on the ASA.

clear configure nac-policy

To remove all NAC policies from the running configuration, except for those that are assigned to group policies, use the **clear configure nac-policy** command in global configuration mode.

clear configure nac-policy

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	—	—	•

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Use this command only if you want to remove all NAC policies. Use the **no** form of the **nac-policy** command to remove a single NAC policy from the configuration.

Examples

The following example shows how to remove all NAC policies:

```
hostname(config)# clear config nac-policy
```

Related Commands

Command	Description
nac-policy	Creates and accesses a Cisco NAC policy, and specifies its type.
show nac-policy	Displays NAC policy usage statistics on the ASA.
show running-config nac-policy	Displays the configuration of each NAC policy on the ASA.
show vpn-session_summary.db	Displays the number of IPsec, WebVPN, and NAC sessions.
show vpn-session.db	Displays information about VPN sessions, including NAC results.

clear configure name

To clear the list of names from the configuration, use the **clear configure name** command in global configuration mode.

clear configure name

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	The **configure** keyword was added.

Usage Guidelines

Use this command to clear the list of names in a configuration.

Examples

The following example shows how to clear the list of names in a configuration:

```
hostname(config)# clear configure name
```

Related Commands

Command	Description
name	Associates a name with an IP address.
show running-config name	Displays the list of names associated with IP addresses.

clear configure nat

To remove the NAT configuration, use the **clear configure nat** command in global configuration mode.

clear configure nat

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	Added the keyword **configure**.
8.0(2)	We introduced support for NAT in transparent mode.
8.3(1)	The NAT configuration was migrated to a new set of commands. This command clears the new NAT configuration.

Usage Guidelines

This command clears both network object NAT **nat** commands and twice NAT **nat** commands.

Examples

The following example shows how to remove the NAT configuration:

```
hostname(config)# show running-config nat
nat (any,any) source static any any
!
object network test
 nat (any,any) static 10.2.2.2
hostname(config)# clear configure nat
hostname(config)# show running-config nat
hostname(config)#
```

Related Commands

Command	Description
nat (object network)	Configures network object NAT.

Command	Description
nat (global)	Configures twice NAT.
show running-config nat	Displays the NAT configuration.

clear configure ntp

To clear the NTP configuration, use the **clear configure ntp** command in global configuration mode.

clear configure ntp

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was changed from **clear ntp**.

Examples

The following example clears all **ntp** commands:

```
hostname# clear configure ntp
```

Related Commands

Command	Description
ntp authenticate	Enables NTP authentication.
ntp authentication-key	Sets the NTP authentication key.
ntp server	Identifies an NTP server to set the time on the ASA.
ntp trusted-key	Specifies the NTP trusted key.
show running-config ntp	Shows the NTP configuration.

clear configure object

To clear all unused network objects and service objects from the configuration, including any NAT objects within these objects, use the **clear configure object** command in global configuration mode.

clear configure object

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
8.3(1)	This command was introduced.

Examples

The following example shows how to remove all network objects and service objects from the configuration:

```
hostname(config)# clear configure object
```

Related Commands

Command	Description
object-network	Defines a named network object that is reflected in all configurations in which the object is used.
object-service	Defines a service object that is reflected in all configurations in which the object is used.
show running-config object	Displays the objects in the configuration.

clear configure object-group

To remove all the **object group** commands from the configuration, use the **clear configure object-group** command in global configuration mode.

clear configure object-group [**protocol** | **service** | **icmp-type** | **network** | **security-group**]

Syntax Description

icmp-type	(Optional) Clears all ICMP groups.
network	(Optional) Clears all network groups.
protocol	(Optional) Clears all protocol groups.
security-group	(Optional) Clears all security groups.
service	(Optional) Clears all service groups.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	The **security-group** keyword was added.

Examples

The following example shows how to remove all the **object-group** commands from the configuration:

```
hostname(config)# clear configure object-group
```

Related Commands

Command	Description
group-object	Adds network object groups.
network-object	Adds a network object to a network object group.
object-group	Defines object groups to optimize your configuration.
port-object	Adds a port object to a service object group.
show running-config object-group	Displays the current object groups.

clear configure object-group-search

To clear the object-group-search configuration, use the **clear config object-group-search** command in global configuration mode.

clear config object-group-search

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.3(1)	This command was introduced.

Examples

The following example shows how to clear the object-group-search configuration:

```
hostname# clear config object-group-search
```

Related Commands

Command	Description
show object-group	Shows the hit count if the object group is of the network object-group type.
show running-config object-group	Displays the current object groups.
show running-config object-group-search	Shows the object-group-search configuration in the running configuration.

clear configure pager

To remove the number of lines set to display in a Telnet session before the "---More---" prompt appears from the running configuration, use the **clear configure pager** command in global configuration mode.

clear configure pager

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
4.0(1)	This command was introduced.

Examples

The following example shows how to remove the number of lines set to display in a Telnet session before the "---More---" prompt appears from the running configuration:

```
hostname(config)# clear configure pager
hostname(config)#
```

Related Commands

Command	Description
show pager	Displays the default number of lines set to display in a Telnet session before the "---More---" prompt appears.
show running-config pager	Displays the number of lines set to display in a Telnet session before the "---More---" prompt appears in the running configuration.
terminal pager	Sets the number of lines to display in a Telnet session before the "---More---" prompt appears. This command is not saved to the running configuration.

clear configure passwd

To clear the login password configuration and reset the remote password, use the **clear configure passwd** command in global configuration mode.

clear configure {**passwd** | **password**}

Syntax Description

passwd | **password**	You can enter either command; they are aliased to each other.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was changed from **clear passwd**.
9.1(2)	Resets the remote password and removes the default password “cisco.”

Examples

The following example resets the remote password and removes the default password “cisco”:

```
hostname(config)# clear configure passwd
```

Related Commands

Command	Description
enable	Enters privileged EXEC mode.
enable password	Sets the enable password.
passwd	Sets the login password.
show curpriv	Shows the currently logged in username and the user privilege level.
show running-config passwd	Shows the login password in encrypted form.

clear configure password-policy

To reset password policy for the current context to the default value, use the **clear configure password-policy** command in global configuration mode.

clear configure password-policy

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
9.1(2)	This command was introduced.

Examples

The following example clears the password policy and restores it to the default value:

```
hostname(config)# clear configure password-policy
```

Related Commands

Command	Description
show run password-policy	Shows the password policy for the current context.
password-policy authenticate-enable	Determines whether users are allowed to modify their own user account without authenticating.

clear configure phone-proxy

To clear the Phone Proxy configuration, use the **clear configure phone-proxy** command in global configuration mode.

clear configure phone-proxy [*phone_proxy_name*]

Syntax Description

phone_proxy_name	Specifies the name of the Phone Proxy instance.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
8.0(4)	The command was introduced.

Examples

The following example clears the Phone Proxy configuration:

```
hostname# clear configure phone-proxy asa_phone_proxy
```

Related Commands

Command	Description
phone-proxy	Configures the Phone Proxy instance.

clear configure pim

To clear all of the global **pim** commands from the running configuration, use the **clear configure pim** command in global configuration mode.

clear configure pim

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **clear configure pim** command clears all of the **pim** commands from the running configuration. To clear PIM traffic counters and topology information, use the **clear pim counters** and the **clear pim topology** commands.

The **clear configure pim** command only clears the **pim** commands entered in global configuration mode; it does not clear the interface-specific **pim** commands.

Examples

The following example shows how to clear all **pim** commands from the running configuration:

```
hostname(config)# clear configure pim
```

Related Commands

Command	Description
clear pim topology	Clears the PIM topology table.
clear pim counters	Clears the PIM traffic counters.
show running-config pim	Displays the **pim** commands in the running configuration.

clear configure policy-map

To remove the all **policy-map** commands, use the **clear configure policy-map** command in global configuration mode.

clear configure policy-map [**type inspect** [*protocol*]}

Syntax Description

protocol	(Optional) Specifies the type of inspection policy map that you want to clear. Available types include: • **dcerpc** • **dns** • **esmtp** • **ftp** • **gtp** • **h323** • **http** • **im** • **mgcp** • **netbios** • **p2p** • **radius-accounting** • **sip** • **skinny** • **snmp**
type inspect	(Optional) Clears inspection policy maps.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To clear the policy map for a specific policy map name, use the **no** form of the **policy-map** command.

Examples

The following example shows the **clear configure policy-map** command:

```
hostname(config)# clear configure policy-map
```

Related Commands

Command	Description
policy-map	Configures a policy; that is, an association of a traffic class and one or more actions.
show running-config policy-map	Displays the entire policy configuration.

clear configure pop3s

To remove all POP3S commands from the configuration, reverting to default values, use the **clear configure pop3s** command in global configuration mode.

clear configure pop3s

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to remove the POP3S configuration:

```
hostname(config)# clear configure pop3s
hostname(config)#
```

Related Commands

Command	Description
show running-configuration pop3s	Displays the running configuration for POP3S.
pop3s	Creates or edits a POP3S e-mail proxy configuration.

clear configure prefix-list

To remove the **prefix-list** commands from the running configuration, use the **clear configure prefix-list** command in global configuration mode.

clear configure prefix-list [*prefix_list_name*]

Syntax Description

prefix_list_name	(Optional) The name of a prefix list. When a prefix list name is specified, only the commands for that prefix list are removed from the configuration.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was changed from **clear prefix-list** to **clear configure prefix-list**.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

The **clear configure prefix-list** command removes the **prefix-list** commands and the **prefix-list description** commands from the running configuration. If a prefix list name is specified, then the **prefix-list** command and **prefix-list description** command, if present, for that prefix list only are removed from the running configuration.

This command does not remove the **no prefix-list sequence** command from the running configuration.

Examples

The following example removes all **prefix-list** commands from the running configuration for a prefix list named MyPrefixList:

```
hostname# clear configure prefix-list MyPrefixList
```

Related Commands

Command	Description
show running-config prefix-list	Displays the **prefix-list** commands in the running configuration.

clear configure priority-queue

To remove the priority queue specification from the configuration, use the **clear configure priority-queue** command in global configuration mode.

clear configure priority queue *interface-name*

Syntax Description

interface-name	Specifies the name of the interface for which you want to show the priority queue details

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

This example removes the priority-queue configuration on the interface named test:

```
hostname(config)# clear configure priority-queue test
```

Related Commands

Command	Description
priority-queue	Configures priority queueing on an interface.
show running-config priority-queue	Displays the current priority-queue configuration for the named interface.

clear configure privilege

To remove the configured privilege levels for commands, use the **clear configure privilege** command in global configuration mode.

clear configure privilege

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was modified to conform to CLI guidelines.

Usage Guidelines

There is no undo.

Examples

This example shows how to reset the configured privilege levels for the commands:

```
hostname(config)# clear configure privilege
```

Related Commands

Command	Description
privilege	Configures the command privilege levels.
show curpriv	Displays current privilege level
show running-config privilege	Displays privilege levels for commands.

clear configure regex

To remove all regular expressions, use the **clear configure regex** command in global configuration mode.

clear configure regex

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To clear the regular expression for a specific regular expression name, use the **no** form of the **regex** command.

Examples

The following example shows how to clear all configured regular expressions:

```
hostname(config)# clear configure regex
```

Related Commands

Command	Description
class-map type regex	Creates a regular expression class map.
regex	Creates a regular expression.
show running-config regex	Shows all regular expressions.
test regex	Tests a regular expression.

clear configure route

To remove the **route** commands from the configuration that do not contain the **connect** keyword, use the **clear configure route** command in global configuration mode.

clear configure route [*interface_name ip_address* [*netmask gateway_ip*]]

Syntax Description

gateway_ip	(Optional) Specifies the IP address of the gateway router (the next hop address for this route).
interface_name	(Optional) Internal or external network interface name.
ip_address	(Optional) Internal or external network IP address.
netmask	(Optional) Specifies a network mask to apply to the *ip_address*.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	Added keyword **configure**.

Usage Guidelines

Use **0.0.0.0** to specify a default route. You can abbreviate the 0.0.0.0 IP address as **0** and the 0.0.0.0 *netmask* as **0.**

Examples

The following example shows how to remove the **route** commands from the configuration that do not contain the **connect** keyword:

```
hostname(config)# clear configure route
```

Related Commands

Command	Description
route	Specifies a static or default route for the an interface.
show route	Displays route information.
show running-config route	Displays configured routes.

clear configure route-map

To remove all of the route maps, use the **clear configure route-map** command in global configuration mode.

clear configure route-map

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Use the **clear configure route-map** command in global configuration mode to remove all the **route-map** commands in the configuration. The **route-map** command is used to configure conditions of redistributing the routes from one routing protocol into another routing protocol.

To remove the individual **route-map** commands, use the **no route-map** command.

Examples

The following example shows how to remove the conditions of redistributing routes from one routing protocol into another routing protocol:

```
hostname(config)# clear configure route-map
```

Related Commands

Command	Description
route-map	Defines the conditions for redistributing routes from one routing protocol into another.
show running-config route-map	Displays information about the route map configuration.

clear configure router

To clear the router configuration commands from the running configuration, use the **clear configure router** command in global configuration mode.

clear configure router [**ospf** [*id*] | **rip** | **eigrp** [*as-number*]]

Syntax Description

as-number	(Optional) Clears the configuration commands for the specified EIGRP autonomous system number, also known as the process ID. If not specified, the configuration commands for all EIGRP routing processes are cleared. The range of values is 1 through 65535. Because only one EIGRP routing process is supported on the ASA, including the optional *as-number* argument has the same effect as omitting it.
eigrp	(Optional) Specifies that only EIGRP router configuration commands are removed from the configuration. EIGRP interface configuration mode commands are not removed.
id	(Optional) Clears the configuration commands for the specified OSPF process ID. If not specified, the configuration commands for all OSPF processes are removed.
ospf	(Optional) Specifies that only OSPF configuration commands are removed from the configuration.
rip	Specifies that only RIP configuration commands are removed from the configuration.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was changed from the **clear router** command to the **clear configure router** command.
7.2(1)	The **rip** keyword was added to the command.
8.0(2)	The **eigrp** keyword was added to the command.
9.0(1)	Multiple context mode is supported.

Examples

The following example clears all OSPF commands associated with OSPF process 1 from the running configuration:

```
hostname(config)# clear configure router ospf 1
```

The following example clears all global configuration mode commands associated with RIP routing process from the running configuration. It does not clear RIP commands entered in interface configuration mode.

```
hostname(config)# clear configure router rip
```

Related Commands

Command	Description
show running-config router	Displays the commands in the global router configuration.
router eigrp	Enables an EIGRP routing process and enters router configuration mode for that process.
router ospf	Enables an OSPF routing process and enters router configuration mode for that process.
router rip	Enables a RIP routing process and enters router configuration mode for that process.

clear configure same-security-traffic

To clear the same-security-traffic configuration, use the **clear configure same-security-traffic** command in global configuration mode.

clear configure same-security-traffic

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example clears the configuration when the **same-security-traffic** command is issued:

```
hostname(config)# clear configure same-security-traffic
```

Related Commands

Command	Description
same-security-traffic	Permits communication between interfaces with equal security levels.
show running-config same-security-traffic	Displays the configuration when the **same-security-traffic** command is issued.

clear configure service-policy

To clear the service policy configuration, use the **clear configure service-policy** command in global configuration mode.

clear configure service-policy

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is an example of the **clear configure service-policy** command:

```
hostname(config)# clear configure service-policy
```

Related Commands

Command	Description
show service-policy	Displays the service policy.
show running-config service-policy	Displays the service policies configured in the running configuration.
service-policy	Configures the service policy.
clear service-policy	Clears service policy statistics.

clear configure sla monitor

To remove the **sla monitor** commands from the running configuration, use the **clear configure sla monitor** command in global configuration mode.

clear configure sla monitor [*sla-id*]

Syntax Description

sla-id	(Optional) The ID of the SLA operation. Valid values are from 1 to 2147483647.

Defaults

If the *sla-id* argument is not specified, all SLA operation configurations are cleared.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command clears the **sla monitor** command, associated SLA monitor configuration mode commands, and the associated **sla monitor** schedule command, if present. It does not remove the **track rtr** commands from the configuration.

To view the **sla monitor** commands in the running configuration, use the **show running-config sla monitor** command.

Examples

The following example clears all **sla monitor** commands from the configuration:

```
hostname(config)# clear configure sla monitor
```

The following example clears the **sla monitor** commands associated with the SLA operation ID 5:

```
hostname(config)# clear configure sla monitor 5
```

Related Commands

Command	Description
show running-config sla monitor	Displays the **sla monitor** commands in the running configuration.

clear configure smtps

To remove all SMTPS commands from the configuration and revert to default values, use the **clear configure smtps** command in global configuration mode.

clear configure smtps

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to remove the SMTPS configuration:

```
hostname(config)# clear configure smtps
```

Related Commands

Command	Description
show running-configuration smtps	Displays the running configuration for SMTPS.
smtps	Creates or edits an SMTPS e-mail proxy configuration.

clear configure smtp-server

To clear all of the SMTP server commands and statistics, use the **clear configure smtp-server** command in global configuration mode.

clear configure smtp-server

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.1(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

The **clear configure smtp-server** command clears all of the **smtp** commands and statistical information.

Examples

The following example shows how to clear all **smtp-server** commands:

```
hostname(config)# clear configure smtp-server
```

Related Commands

Command	Description
show running-config smtp-server	Displays the current SMTP server configuration.

clear configure snmp-map

To clear the SNMP map configuration, use the **clear configure snmp-map** command in global configuration mode.

clear configure snmp-map

Syntax DescriptionT

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **clear configure snmp-map** command removes the SNMP map configuration.

Examples

The following example clears the SNMP map configuration:

```
hostname# clear configure snmp-map
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
deny version	Disallows traffic using a specific version of SNMP.
inspect snmp	Enable SNMP application inspection.
snmp-map	Defines an SNMP map and enables SNMP map configuration mode.

clear configure snmp-server

To disable the SNMP server and remove all SNMP configurations, use the **clear configure snmp-server** command in global configuration mode.

clear configure snmp-server [**group** | **host** | **user**]

Syntax Description

group	Removes all SNMP groups.
host	Removes all SNMP hosts.
user	Removes all SNMP users.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to disable the SNMP server:

```
hostname# clear configure snmp-server
```

Related Commands

Command	Description
snmp-server	Provides the ASA event information through SNMP.
show snmp-server statistics	Displays information about the SNMP server configuration.

clear configure ssh

To clear all SSH commands from the running configuration, use the **clear configure ssh** command in global configuration mode.

clear configure ssh

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was changed from the **clear ssh** command to the **clear configure ssh** command.

Usage Guidelines

This command clears all SSH commands from the configuration. To clear specific commands, use the **no** form of those commands.

Examples

The following example clears all SSH commands from the configuration:

```
hostname(config)# clear configure ssh
```

Related Commands

Command	Description
show running-config ssh	Displays the current SSH commands in the running configuration.
ssh	Allows SSH connectivity to the ASA from the specified client or network.
ssh scopy enable	Enables a secure copy server on the ASA.
ssh timeout	Sets the timeout value for idle SSH sessions.
ssh version	Restricts the ASA to using either SSH Version 1 or SSH Version 2.

clear configure ssl

To remove all SSL commands from the configuration and revert to default values, use the **clear configure ssl** command in global configuration mode.

clear configure ssl

Syntax Description

This command has no arguments or keywords.

Defaults

By default:

- Both the SSL client and SSL server versions are **any**.
- SSL encryption is 3DES-SHA1, DES-SHA1, RC4-MD5, in that order.
- There is no trustpoint association; the ASA uses the default RSA key-pair certificate.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to use the **clear configure ssl** command:

```
hostname(config)# clear configure ssl
```

Related Commands

Command	Description
show running-config ssl	Displays the current set of configured **ssl** commands.
ssl client-version	Specifies the SSL/TLS protocol version that the ASA uses when acting as a client.
ssl server-version	Specifies the SSL/TLS protocol version that the ASA uses when acting as a server.
ssl trust-point	Specifies the certificate trustpoint that represents the SSL certificate for an interface.

clear configure static

To remove all the **static** commands from the configuration, use the **clear configure static** command in global configuration mode.

clear configure static

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	The keyword **configure** was added.

Examples

This example shows how to remove all the **static** commands from the configuration:

```
hostname(config)# clear configure static
```

Related Commands

Command	Description
show running-config static	Displays all **static** commands in the configuration.
static	Configures a persistent one-to-one address translation rule by mapping a local IP address to a global IP address.

clear configure sunrpc-server

To clear the remote processor call services from the ASA, use the **clear configure sunrpc-server** command in global configuration mode.

clear configure sunrpc-server [**active**]

Syntax Description

active	(Optional) Identifies the SunRPC services that are currently active on the ASA.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **sunrpc-server** command displays the configured **router ospf** commands.

Note If the highest-level IP address on the ASA is a private address, this address is sent in hello packets and database definitions. To prevent this action, set the **router-id** *ip_address* argument to a global address.

Examples

The following example shows how to clear the SunRPC services from the ASA:

```
hostname(config)# clear configure sunrpc-server active
```

Related Commands

Command	Description
sunrpc-server	Creates the SunRPC services table.
show running-config sunrpc-server	Displays the information about the SunRPC configuration.

clear configure sysopt

To clear the configuration for all **sysopt** commands, use the **clear configure sysopt** command in global configuration mode.

clear configure sysopt

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was changed from **clear sysopt**.
9.0(1)	Support for multiple context mode was added.

Examples

The following example clears all **sysopt** command configuration:

```
hostname(config)# clear configure sysopt
```

Related Commands

Command	Description
show running-config sysopt	Shows the **sysopt** command configuration.
sysopt connection permit-ipsec	Permits any packets that come from an IPsec tunnel without checking any ACLs for interfaces.
sysopt connection tcpmss	Overrides the maximum TCP segment size or ensures that the maximum is not less than a specified size.
sysopt connection timewait	Forces each TCP connection to linger in a shortened TIME_WAIT state after the final normal TCP close-down sequence.
sysopt nodnsalias	Disables alteration of the DNS A record address when you use the **alias** command.

clear configure tcp-map

To clear the TCP map configuration, use the **clear configure tcp-map** command in global configuration mode.

clear configure tcp-map

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to clear the TCP map configuration:

```
hostname(config)# clear configure tcp-map
```

Related Commands

Command	Description
tcp-map	Creates a TCP map and accesses tcp-map configuration mode.
show running-config tcp-map	Displays the information about the TCP map configuration.

clear configure telnet

To remove the Telnet connection and idle timeout from the configuration, use the **clear configure telnet** command in global configuration mode.

clear configure telnet

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	The keyword **configure** was added.

Examples

This example shows how to remove the Telnet connection and the idle timeout from the ASA configuration:

```
hostname(config)# clear configure telnet
```

Related Commands

Command	Description
show running-config telnet	Displays the current list of IP addresses that are authorized to use Telnet connections to the ASA.
telnet	Adds Telnet access to the console and sets the idle timeout.

clear configure terminal

To clear the terminal display width setting, use the **clear configure terminal** command in global configuration mode.

clear configure terminal

Syntax Description

This command has no arguments or keywords.

Defaults

The default display width is 80 columns.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	The **configure** keyword was added.

Examples

The following example clears the display width:

```
hostname# clear configure terminal
```

Related Commands

Command	Description
terminal	Sets the terminal line parameters.
terminal width	Sets the terminal display width.
show running-config terminal	Displays the current terminal settings.

clear configure threat-detection

To clear the threat detection configuration, use the **clear configure threat-detection** command in global configuration mode.

clear configure threat-detection

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

This command clears all **threat-detection** configuration commands.

Examples

The following example clears all threat detection commands:

```
hostname# clear configure threat-detection
```

Related Commands

Command	Description
clear threat-detection rate	Clears basic threat detection statistics.
clear threat-detection shun	Releases currently shunned hosts.
show running-config threat-detection	Shows the threat detection configuration.
threat-detection basic-threat	Enables basic threat detection.
threat-detection scanning-threat	Enables scanning threat detection.

clear configure timeout

To restore the default idle time durations in the configuration, use the **clear configure timeout** command in global configuration mode.

clear configure timeout

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

This example shows how to remove the maximum idle time durations from the configuration:

```
hostname(config)# clear configure timeout
```

Related Commands

Command	Description
show running-config timeout	Displays the timeout value of the designated protocol.
timeout	Sets the maximum idle time duration.

clear configure time-range

To clear all configured time ranges, use the **clear configure time-range** command in global configuration mode.

clear configure time-range

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example clears all configured time ranges:

```
hostname(config)# clear configure time-range
```

Related Commands

Command	Description
time-range	Enters time-range configuration mode and defines a time range that you can attach to traffic rules, or an action.

clear configure tls-proxy

To remove all configured TLS proxy instances, use the **clear configure tls-proxy** command in global configuration mode.

clear configure tls-proxy

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Examples

The following following example removes all configured TLS proxy instances using the **clear configure tls-proxy** command:

```
hostname# clear configure tls-proxy
```

Related Commands

Command	Description
client	Defines a cipher suite and sets the local dynamic certificate issuer or keypair.
ctl-provider	Defines a CTL provider instance and enters provider configuration mode.
show running-config tls-proxy	Shows running configuration of all or specified TLS proxies.
tls-proxy	Defines a TLS proxy instance and sets the maximum sessions.

clear configure tunnel-group

To remove all or specified tunnel groups from the configuration, use the **clear config tunnel-group** command in global configuration.

clear config tunnel-group [*name*]

Syntax Description

name	(Optional) Specifies the name of a tunnel group.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Examples

The following example entered in global configuration mode, removes the toengineering tunnel group from the configuration:

```
hostname(config)# clear config tunnel-group toengineering
hostname(config)#
```

Related Commands

Command	Description
show running-config tunnel-group	Displays information about all or selected tunnel-groups.
tunnel-group	Enters tunnel-group configuration mode for the specified type.

clear configure tunnel-group-map

To clear the policy and rules by which the tunnel group name is derived from the content of the certificate, use the **clear configure tunnel-group-map** command in global configuration mode.

clear configure tunnel-group-map

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

The tunnel-group-map commands configure the policy and rules by which certificate-based IKE sessions are mapped to tunnel groups. To associate the certificate map entries created using the **crypto ca certificate map** command with tunnel groups, use the **tunnel-group-map** command in global configuration mode. You can invoke this command multiple times as long as each invocation is unique and you do not reference a map index more than once.

The **crypto ca certificate map** command maintains a prioritized list of certificate mapping rules. There can be only one map. But this map can have up to 65535 rules. See the documentation on the **crypto ca certificate map** command for more information.

The processing that derives the tunnel group name from the certificate ignores entries in the certificate map that are not associated with a tunnel group (any map rule not identified by this command).

Examples

The following example entered in global configuration mode, specifies a default tunnel group to use when the name cannot be derived by other configured methods:

```
hostname(config)# clear configure tunnel-group-map
```

Related Commands

Command	Description
crypto ca certificate map	Enters crypto ca certificate map configuration mode.
subject-name (crypto ca certificate map)	Identifies the DN from the CA certificate that is to be compared to the rule entry string.
tunnel-group-map default-group	Designates an existing tunnel group name as the default tunnel group.
tunnel-group-map enable	Configures the policy and rules by which certificate-based IKE sessions are mapped to tunnel groups.

clear configure uc-ime

To clear the running configuration for the Cisco Intercompany Media Engine proxy on the ASA, use the **clear configure uc-ime** command in global configuration mode.

clear configure uc-ime [*name*]

Syntax Description

name	(Optional) Specifies the instance name of the Cisco Intercompany Media Engine proxy configured on the ASA. The *name* argument is limited to 64 characters. Only one Cisco Intercompany Media Engine proxy can be configured on the ASA.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
8.3(1)	The command was introduced.

Usage Guidelines

This command has no usage guidelines.

Examples

The following example clears the running configuration for the Cisco Intercompany Media Engine proxy:

```
hostname(config)# clear configure local-ent-ime
```

Related Commands

Command	Description
clear uc-ime	Clears the statistical counters for the Cisco Intercompany Media Engine proxy.
show running-config uc-ime	Shows the running configuration of the Cisco Intercompany Media Engine proxy.

Command	Description
show uc-ime	Displays statistical or detailed information about fallback notifications, mapping service sessions, and signaling sessions.
uc-ime	Creates the Cisco Intercompany Media Engine proxy instance on the ASA.

clear configure url-block

To clear clears URL pending block buffer and long URL support configuration, use the **clear configure url-block** command in global configuration mode.

clear configure url-block

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **clear configure url-block** command clears URL pending block buffer and long URL support configuration.

Examples

The following example clears the URL pending block buffer and long URL support configuration:

```
hostname# clear configure url-block
```

Related Commands

Commands	Description
clear url-block block statistics	Clears the block buffer usage counters.
show url-block	Displays information about the URL cache, which is used for buffering URLs while waiting for responses from an N2H2 or Websense filtering server.
url-block	Manages the URL buffers used for web server responses.
url-cache	Enables URL caching while pending responses from an N2H2 or Websense server and sets the size of the cache.
url-server	Identifies an N2H2 or Websense server for use with the **filter** command.

clear configure url-cache

To clear the URL cache, use the **clear configure url-cache** command in global configuration mode.

clear configure url-cache

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **clear configure url-cache** command clears the URL cache.

Examples

The following example clears the URL cache:

```
hostname# clear configure url-cache
```

Related Commands

Commands	Description
clear url-cache statistics	Removes **url-cache** command statements from the configuration.
filter url	Directs traffic to a URL filtering server.
show url-cache statistics	Displays information about the URL cache, which is used for buffering URLs while waiting for responses from an N2H2 or Websense filtering server.
url-cache	Enables URL caching while pending responses from an N2H2 or Websense server and sets the size of the cache.
url-server	Identifies an N2H2 or Websense server for use with the **scsc** command.

clear configure url-list

To remove a configured set of URLs that WebVPN users can access , use the **clear configure url-list** command in global configuration mode.

clear configure url-list [*listname***]**

Syntax Description

listname	Groups the set of URLs that WebVPN users can access. The maximum is 64 characters.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To remove all configured URLs, use this command without the *listname* argument.

To remove only the URLs for a specific list, use this command with that *listname* argument.

Examples

The following example shows how to remove the URL list called Marketing URLs.

```
hostname(config)# clear configure url-list Marketing URLs
```

Related Commands

Command	Description
show running-configuration url-list	Displays the current set of configured **url-list** commands.
url-list	Configures the set of URLs that WebVPN users can access.
url-list	Enables WebVPN URL access for a specific group policy or user.

clear configure url-server

To clear the URL filtering server configuration, use the **clear configure url-server** command in global configuration mode.

clear configure url-server

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **clear configure url-server** command clears the URL filtering server configuration.

Examples

The following example URL filtering server configuration:

```
hostname# clear configure url-server
```

Related Commands

Commands	Description
clear url-server	Clears the URL filtering server statistics.
show url-server	Displays information about the URL cache, which is used for buffering URLs while waiting for responses from an N2H2 or Websense filtering server.
url-cache	Enables URL caching while pending responses from an N2H2 or Websense server and sets the size of the cache.
url-block	Manages the URL buffers used for web server responses while waiting for a filtering decision from the filtering server.
url-server	Identifies an N2H2 or Websense server for use with the **filter** command.

clear configure user-identity

To clear the configuration for the Identity Firewall, use the **clear configure user-identity** command in global configuration mode.

clear configure user-identity [**ad-agent** | **logout-probe** | **action** | **domain**]

Syntax Description

action	Removes the configuration for the following Identity Firewall actions configured by the following commands: • **user-identity action ad-agent-down** • **user-identity action domain-controller-down** • **user-identity action mac-address-mismatch** • **user-identity action netbios-response-fail**
ad-agent	Removes all configuration for the Active Directory Agent configured for the Identity Firewall.
domain	Removes all domains configured for the Identity Firewall. Specifying this keyword only removes the domains that are not referenced by a domain object (for example, in the **object-group** or **access-list** commands).
logout-probe	Removes all configuration for the logout probe configured for the Identity Firewall. When NetBIOS probing is enabled for the Identity Firewall, the ASA probes the user client IP address to determine whether the client is still active. By default, NetBIOS probing is disabled.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
8.4(2)	This command was introduced.

Examples

The following example clears the Active Directory Agent configured for the Identity Firewall:

```
hostname# clear configure user-identity ad-agent
```

Related Commands

Commands	Description
user-identity enable	Creates the Cisco Identify Firewall instance.
user-identity logout-probe	Enables NetBIOS probing for the Cisco Identify Firewall instance.

clear configure username

To clear the username database, use the **clear configure username** command in global configuration mode.

clear configure username [*name*]

Syntax Description

name	(Optional) Provides the name of the user.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.1(2)	Password policy authentication changes were added.

Usage Guidelines

To clear the configuration for a particular user, use this command and append the username.

The internal user authentication database consists of the users entered with the **username** command. The **login** command uses this database for authentication.

When password policy authentication is enabled, this command does not allow users to delete their password. For example:

- Entering the **clear config username** *your_own _username* command is not allowed.
- Entering the **clear config username** command is allowed, but the user account is skipped and not deleted.

Examples

The following example shows how to clear the configuration for the user named anyuser:

```
hostname(config)# clear configure username anyuser
```

Related Commands

Command	Description
show running-config username	Displays the running configuration for a particular user or for all users.
username	Adds a user to the ASA database.
username attributes	Lets you configure AVPs for specific users.

clear configure virtual

To remove the authentication virtual server from the configuration, use the **clear configure virtual** command in global configuration mode.

clear configure virtual

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was modified to conform to CLI guidelines.

Usage Guidelines

There is no undo.

Examples

The following example shows the **clear configure virtual** command:

```
hostname(config)# clear configure virtual
```

Related Commands

Command	Description
show running-config virtual	Displays the IP address for the authentication virtual server.
virtual http	Allows separate authentication with the ASA and with the HTTP server.
virtual telnet	Authenticates users with the virtual Telnet server for traffic types for which the ASA does not supply an authentication prompt.

clear configure vpdn group

To remove all **vpdn group** commands from the configuration, use the **clear configure vpdn group** command in global configuration mode.

clear configure vpdn group

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

Entering the **clear configure vpdn group** command has no affect on active PPPoE connections.

Examples

The following example shows how to clear the VPDN group configuration:

```
hostname(config)# clear configure vpdn group
```

Related Commands

Command	Description
clear configure vpdn username	Removes all **vpdn username** commands from the configuration.
show running-config vpdn username	Shows the current configuration for VPDN usernames.

clear configure vpdn username

To remove all **vpdn username** commands from the configuration, use the **clear configure vpdn username** command in global configuration mode.

clear configure vpdn username

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

Entering the **clear configure vpdn username** command has no affect on active PPPoE connections.

Examples

The following example shows how to clear the VPDN username configuration:

```
hostname(config)# clear configure vpdn username
```

Related Commands

Command	Description
clear configure vpdn group	Removes all **vpdn group** commands from the configuration.
show running-config vpdn username	Shows the current configuration for VPDN usernames.

clear configure vpn-load-balancing

To remove the previously specified VPN load-balancing configuration, thus disabling VPN load-balancing, use the **clear configure vpn load-balancing** command in global configuration mode.

clear configure vpn load-balancing

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

The **clear configure vpn load-balancing** command also clears the following related commands: **cluster encryption**, **cluster ip address**, **cluster key**, **cluster port**, **nat**, **participate**, and **priority**.

Examples

The following example removes VPN load-balancing configuration statements from the configuration:

```
hostname(config)# clear configure vpn load-balancing
```

Related Commands

show running-config load-balancing	Displays the current VPN load-balancing configuration.
vpn load-balancing	Enters vpn load-balancing configuration mode.

clear configure wccp

To remove all WCCP configuration, use the **clear configure wccp** command in global configuration mode.

clear configure wccp

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to clear the WCCP configuration:

```
hostname(config)# clear configure wccp
```

Related Commands

Command	Description
show wccp	Displays the WCCP configuration.
wccp redirect	Enables support of WCCP redirection.

clear configure xlate

To clear the **xlate per-session** rules, use the **clear configure xlate** command in global configuration mode.

clear configure xlate

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

This command clears manually-created rules, and keeps the default configuration.

Examples

The following example shows the running configuration plus default rules, and then clears the manually-created rules:

```
hostname(config)# show running-config all xlate
xlate per-session deny tcp any4 any4
xlate per-session deny tcp any4 any6
xlate per-session deny tcp any6 any4
xlate per-session deny tcp any6 any6
xlate per-session deny udp any4 any4 eq domain
xlate per-session deny udp any4 any6 eq domain
xlate per-session deny udp any6 any4 eq domain
xlate per-session deny udp any6 any6 eq domain
xlate per-session permit tcp any4 any4
xlate per-session permit tcp any4 any6
xlate per-session permit tcp any6 any4
xlate per-session permit tcp any6 any6
xlate per-session permit udp any4 any4 eq domain
xlate per-session permit udp any4 any6 eq domain
xlate per-session permit udp any6 any4 eq domain
xlate per-session permit udp any6 any6 eq domain
hostname(config)# clear configure xlate
hostname(config)# show running-config xlate
hostname(config)# show running-config all xlate
```

```
xlate per-session permit tcp any4 any4
xlate per-session permit tcp any4 any6
xlate per-session permit tcp any6 any4
xlate per-session permit tcp any6 any6
xlate per-session permit udp any4 any4 eq domain
xlate per-session permit udp any4 any6 eq domain
xlate per-session permit udp any6 any4 eq domain
xlate per-session permit udp any6 any6 eq domain
hostname(config)#
```

Related Commands

Command	Description
nat (global)	Adds a twice NAT rule.
nat (object)	Adds an object NAT rule.
show running-config xlate	Shows the **xlate per-session** rules.
xlate per-session	Adds a per-session PAT rule.

clear configure zonelabs-integrity

To remove all Zone Labs Integrity servers from the running configuration, use the **clear configure zonelabs-integrity** command in global configuration mode.

clear configure zonelabs-integrity

Syntax Description

This command has no arguments or keywords.

Defaults

Removes all Zone Labs Integrity servers.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2.(1)	This command was introduced.

Usage Guidelines

The **clear configure zonelabs-integrity** command removes all Zone Labs Integrity servers from the running configuration, including active and standby Integrity servers.

Examples

The following example shows the removal of two configured Zone Labs Integrity servers:

```
hostname(config)# show running-config zonelabs-integrity
zonelabs-integrity server-address 10.0.9.1 10.0.9.2
hostname(config)# clear configure zonelabs-integrity
hostname(config)# show running-config zonelabs-integrity
hostname(config)#
```

Related Commands

Command	Description
show running-config [all] zonelabs-integrity	Displays the configured Zone Labs Integrity servers.

CHAPTER 8

clear conn through clear isakmp sa Commands

clear conn

To clear a specific connection or multiple connections, use the **clear conn** command in privileged EXEC mode.

clear conn [**all**] [**protocol** {**tcp** | **udp**}] [**address** *src_ip*[**-***src_ip*] [**netmask** *mask*]] [**port** *src_port*[**-***src_port*]] [**address** *dest_ip*[**-***dest_ip*] [**netmask** *mask*]] [**port** *dest_port*[**-***dest_port*] [**user** [*domain_nickname*\]*user_name* | **user-group** [*domain_nickname*\\]*user_group_name*]]

Syntax Description

address	(Optional) Clears connections with the specified source or destination IP address.
all	(Optional) Clears all connections, including to-the-box connections. Without the **all** keyword, only through-the-box connections are cleared.
dest_ip	(Optional) Specifies the destination IP address (IPv4 or IPv6). To specify a range, separate the IP addresses with a dash (-). For example: `10.1.1.1-10.1.1.5`
dest_port	(Optional) Specifies the destination port number. To specify a range, separate the port numbers with a dash (-). For example: `1000-2000`
netmask *mask*	(Optional) Specifies a subnet mask for use with the given IP address.
port	(Optional) Clears connections with the specified source or destination port.
protocol {tcp | udp}	(Optional) Clears connections with the protocol **tcp** or **udp**.
src_ip	(Optional) Specifies the source IP address (IPv4 or IPv6). To specify a range, separate the IP addresses with a dash (-). For example: `10.1.1.1-10.1.1.5`
src_port	(Optional) Specifies the source port number. To specify a range, separate the port numbers with a dash (-). For example: `1000-2000`
user [*domain_nickname*\]*user_name*	(Optional) Clears connections that belong to the specified user. When you do not include the *domain_nickname* argument, the ASA clears connections for the user in the default domain.
user-group [*domain_nickname*\\]*user_group_name*	(Optional) Clears connections that belong to the specified user group. When you do not include the *domain_nickname* argument, the ASA clears connections for the user group in the default domain.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(8)/7.2(4)/8.0(4)	This command was introduced.
8.4(2)	Added the **user** and **user-group** keywords to support the Identity Firewall.

Usage Guidelines

This command supports IPv4 and IPv6 addresses.

When you make security policy changes to the configuration, all *new* connections use the new security policy. Existing connections continue to use the policy that was configured at the time of the connection establishment. To ensure that all connections use the new policy, you need to disconnect the current connections so they can reconnect using the new policy using the **clear conn** command. You can alternatively use the **clear local-host** command to clear connections per host, or the **clear xlate** command for connections that use dynamic NAT.

When the ASA creates a pinhole to allow secondary connections, this is shown as an incomplete connection in the **show conn** command output. To clear this incomplete connection, use the **clear conn** command.

Examples

The following example shows how to remove all connections and then clear the management connection between 10.10.10.108:4168 and 10.0.8.112:22:

```
hostname# show conn all
TCP mgmt 10.10.10.108:4168 NP Identity Ifc 10.0.8.112:22, idle 0:00:00, bytes 3084, flags
UOB

hostname# clear conn address 10.10.10.108 port 4168 address 10.0.8.112 port 22
```

Related Commandss

Commands	Description
clear local-host	Clears all connections by a specific local host or all local hosts.
clear xlate	Clears a dynamic NAT session, and any connections using NAT.
show conn	Shows connection information.
show local-host	Displays the network states of local hosts.
show xlate	Shows NAT sessions.

clear console-output

To remove the currently captured console output, use the **clear console-output** command in privileged EXEC mode.

clear console-output

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to remove the currently captured console output:

```
hostname# clear console-output
```

Related Commands

Command	Description
console timeout	Sets the idle timeout for a console connection to the ASA.
show console-output	Displays the captured console output.
show running-config console timeout	Displays the idle timeout for a console connection to the ASA.

clear coredump

To clear the coredump log, use the **clear coredump** command in global configuration mode.

clear coredump

Syntax Description

This command has no arguments or keywords.

Defaults

By default, coredumps are not enabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

This command removes the coredump file system contents and the coredump log. The coredump file system remains intact. The current coredump configuration remains unchanged.

Examples

The following example removes the coredump file system contents and the coredump log:

```
hostname(config)# clear coredump
Proceed with removing the contents of the coredump filesystem on 'disk0:' [confirm]
```

Related Commands

Command	Description
coredump enable	Enables the coredump feature.
clear configure coredump	Removes the coredump file system and its contents from your system.
show coredump filesystem	Displays files on the coredump filesystem.
show coredump log	Shows the coredump log.

clear counters

To clear the protocol stack counters, use the **clear counters** command in global configuration mode.

clear counters [all | context *context-name* **| summary | top** *N* **] [detail] [protocol** *protocol_name* [:*counter_name*]] [**threshold** *N*]

Syntax Description

all	(Optional) Clears all filter details.
context *context-name*	(Optional) Specifies the context name.
:*counter_name*	(Optional) Specifies a counter by name.
detail	(Optional) Clears detailed counters information.
protocol *protocol_name*	(Optional) Clears the counters for the specified protocol.
summary	(Optional) Clears the counter summary.
threshold *N*	(Optional) Clears the counters at or above the specified threshold. The range is 1 through 4294967295.
top *N*	(Optional) Clears the counters at or above the specified threshold. The range is 1 through 4294967295.

Defaults

The **clear counters summary detail** command is the default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to clear the protocol stack counters:

```
hostname(config)# clear counters
```

Related Commands

Command	Description
show counters	Displays the protocol stack counters.

clear crashinfo

To delete the contents of the crash file in flash memory, use the **clear crashinfo** command in privileged EXEC mode.

clear crashinfo

Syntax Description

This command has no arguments or keywords.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to delete the crash file:

```
hostname# clear crashinfo
```

Related Commands

crashinfo force	Forces a crash of the ASA.
crashinfo save disable	Disables crash information from writing to flash memory.
crashinfo test	Tests the ability of the ASA to save crash information to a file in flash memory.
show crashinfo	Displays the contents of the crash file stored in flash memory.

clear crypto accelerator statistics

To clear the the global and accelerator-specific statistics from the crypto accelerator MIB, use the **clear crypto accelerator statistics** command in privileged EXEC mode.

clear crypto accelerator statistics

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the mode in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Examples

The following example entered in global configuration mode, displays crypto accelerator statistics:

```
hostname(config)# clear crypto accelerator statistics
hostname(config)#
```

Related Commands

Command	Description
clear crypto protocol statistics	Clears the protocol-specific statistics in the crypto accelerator MIB.
show crypto accelerator statistics	Displays the global and accelerator-specific statistics in the crypto accelerator MIB.
show crypto protocol statistics	Displays the protocol-specific statistics from the crypto accelerator MIB.

clear crypto ca crls

To empty the CRL cache of all CRLs associated with a specified trustpoint, all CRLs associated with the trustpool from the cache, or the CRL cache of all CRLs, use the **clear crypto ca crls** command in privileged EXEC mode.

clear crypto ca crls [**trustpool** | trustpoint *trustpointname*]

Syntax Description

trustpointname	The name of a trustpoint. If you do not specify a name, this command clears all CRLs cached on the system. If you give the trustpoint keyword without a trustpointname, the command fails.
trustpool	Indicates that the action should be applied only to the CRLs that are associated with certificates in the trustpool.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	

Command History

Release	Modification
9.0(1)	This command was introduced.

Examples

The following independent examples issued in privileged EXEC configuration mode clear all of the trustpool CRLs, clears all of the CRLs associated with trustpoint123, and removes all of the cached CRLs from the ASA:

```
hostname# clear crypto ca crl trustpool
hostname# clear crypto ca crl trustpoint trustpoint123
hostname# clear crypto ca crl
```

Related Commands

Command	Description
crypto ca crl request	Downloads the CRL based on the CRL configuration of the trustpoint.
show crypto ca crl	Displays all cached CRLs or CRLs cached for a specified trustpoint.

clear crypto ca trustpool

To remove all certificates from the trustpool, use the **clear crypto ca trustpool** command in global configuration mode.

clear crypto ca trustpool [**noconfirm**]

Syntax Description

noconfirm	Suppresses user confirmation prompts, and the command will be processes as requested.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•		—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

The user is asked to confirm this action before carrying it out.

Examples

```
hostname# clear crypto ca trustpool
You are about to clear the trusted certificate pool. Do you want to continue? (y/n)
hostname#
```

Related Commands

Command	Description
crypto ca trustpool export	Exports the certificates that constitute the PKI trustpool.
crypto ca trustpool import	Imports the certificates that constitute the PKI trustpool.
crypto ca trustpool remove	Removes a single specified certificate from the trustpool.

clear crypto ikev1

To remove the IPsec IKEv1 SAs or statistics, use the **clear crypto ikev1** command in privileged EXEC mode. To clear all IKEv1 SAs, use this command without arguments.

clear crypto ikev1 {**sa** *IP_address_hostname* | **stats**}

Syntax Description

sa	Clears the SA.
IP_address_hostname	An IP address or hostname.
stats	Clears the IKEv1 statistics.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
8.4(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

To clear all IPsec IKEv1 SAs, use this command without arguments.

Examples

The following example, issued in global configuration mode, removes all of the IPsec IKEv1 statistics from the ASA:

```
hostname# clear crypto ikev1 stats
hostname#
```

The following example, entered in global configuration mode, deletes SAs with a peer IP address of 10.86.1.1:

```
hostname# clear crypto ikev1 peer 10.86.1.1
hostname#
```

Related Commands

Command	Description
clear configure crypto map	Clears all or specified crypto maps from the configuration.
clear configure isakmp	Clears all ISAKMP policy configuration.
show ipsec sa	Displays information about IPSec SAs, including counters, entry, map name, peer IP address and hostname.
show running-config crypto	Displays the entire crypto configuration, including IPsec, crypto maps, dynamic crypto maps, and ISAKMP.

clear crypto ikev2

To remove the IPsec IKEv2 SAs or statistics, use the **clear crypto ikev2** command in privileged EXEC mode. To clear all IKEv2 SAs, use this command without arguments.

clear crypto ikev2 {**sa** *IP_address_hostname* | **stats**}

Syntax Description

sa	Clears the SA.
IP_address_hostname	An IP address or hostname.
stats	Clears the IKEv2 statistics.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
8.4(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

To clear all IPsec IKEv2 SAs, use this command without arguments.

Examples

The following example, issued in global configuration mode, removes all of the IPsec IKEv2 statistics from the ASA:

```
hostname# clear crypto ikev2 stats
hostname#
```

The following example, entered in global configuration mode, deletes SAs with a peer IP address of 10.86.1.1:

```
hostname# clear crypto ikev2 peer 10.86.1.1
hostname#
```

Related Commands

Command	Description
clear configure crypto map	Clears all or specified crypto maps from the configuration.
clear configure isakmp	Clears all ISAKMP policy configuration.
show ipsec sa	Displays information about IPsec SAs, including counters, entry, map name, peer IP address and hostname.
show running-config crypto	Displays the entire crypto configuration, including IPsec, crypto maps, dynamic crypto maps, and ISAKMP.

clear crypto ipsec sa

To remove the IPsec SA counters, entries, crypto maps or peer connections, use the **clear crypto ipsec sa** command in privileged EXEC mode. To clear all IPsec SAs, use this command without arguments.

clear [crypto] ipsec sa [counters | entry {*hostname* | *ip_address*} **{esp | ah}** *spi* **| map** *map name* **|**
peer {*hostname* | *ip_address*}**]**

Syntax Description

ah	Authentication header.
counters	Clears all IPsec per SA statistics.
entry	Deletes the tunnel that matches the specified IP address/hostname, protocol, and SPI value.
esp	Encryption security protocol.
hostname	Identifies a hostname assigned to an IP address.
ip_address	Identifies an IP address.
map	Deletes all tunnels associated with the specified crypto map as identified by map name.
map name	An alphanumeric string that identifies a crypto map. The maximum is 64 characters.
peer	Deletes all IPsec SAs to a peer as identified by the specified hostname or IP address.
spi	Identifies the Security Parameters Index (a hexidecimal number). This must be the inbound SPI. We do not support this command for the outbound SPI.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

To clear all IPsec SAs, use this command without arguments.

Examples

The following example, issued in global configuration mode, removes all of the IPsec SAs from the ASA:

```
hostname# clear crypto ipsec sa
hostname#
```

The following example, entered in global configuration mode, deletes SAs with a peer IP address of 10.86.1.1:

```
hostname# clear crypto ipsec peer 10.86.1.1
hostname#
```

Related Commands

Command	Description
clear configure crypto map	Clears all or specified crypto maps from the configuration.
clear configure isakmp	Clears all ISAKMP policy configuration.
show ipsec sa	Displays information about IPsec SAs, including counters, entry, map name, peer IP address and hostname.
show running-config crypto	Displays the entire crypto configuration, including IPsec, crypto maps, dynamic crypto maps, and ISAKMP.

clear crypto protocol statistics

To clear the protocol-specific statistics in the crypto accelerator MIB, use the **clear crypto protocol statistics** command in privileged EXEC mode.

clear crypto protocol statistics *protocol*

Syntax Description

protocol	Specifies the name of the protocol for which you want to clear statistics. Protocol choices are as follows: • **all**—All protocols currently supported. • **ikev1**—Internet Key Exchange (IKE) version 1. • **ikev2**—Internet Key Exchange (IKE) version 2. • **ipsec-client**—IP Security (IPsec) Phase-2 protocols. • **other**—Reserved for new protocols. • **srtp**—Secure RTP (SRTP) protocol • **ssh**—Secure Shell (SSH) protocol • **ssl-client—**Secure Socket Layer (SSL) protocol.

Defaults

No default behavior or values.

Command Modes

The following table shows the mode in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.4(1)	The **ikev1** and **ikev2** keywords were added.
9.0(1)	Support for multiple context mode was added.

Examples

The following example, entered in global configuration mode, clears all crypto accelerator statistics:

```
hostname# clear crypto protocol statistics all
hostname#
```

Related Commands

Command	Description
clear crypto accelerator statistics	Clears the global and accelerator-specific statistics in the crypto accelerator MIB.
show crypto accelerator statistics	Displays the global and accelerator-specific statistics from the crypto accelerator MIB.
show crypto protocol statistics	Displays the protocol-specific statistics in the crypto accelerator MIB.

clear cts

To clear data used by the ASA when integrated with Cisco TrustSec, use the **clear cts** command in global configuration mode:

clear cts {**environment-data** | **pac**}

Syntax Description

environment-data	Clears all CTS environment data.
pac	Clears the stored CTS PAC.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Using the **environment-data** keyword with the **clear cts** command clears the Cisco TrustSec environment data downloaded from the Cisco ISE. You can trigger the next environment data refresh manually or the ASA will refresh the data when the refresh timer expires. Running the **clear cts environment-data** does not remove the Cisco TrustSec PAC from the ASA. Because running the **clear cts nvironment-data** command impacts traffic policy, you are prompted to confirm the action.

Using the **pac** keyword with the **clear cts** command clears the PAC information stored in NVRAM on the ASA. Without a PAC, the ASA cannot download Cisco TrustSec environment data. However, environment data that is already on the ASA remains in use. Because running the **clear cts pac** command renders the ASA unable to retrieve environment data updates, you are prompted to confirm the action.

Restrictions

- HA: This command is not supported on the standby device in an HA configuration. Running the **clear cts** [**environment-data** | **pac**] on the standby device displays the following error message:

  This command is only permitted on the primary device.

- Clustering: This command is only supported on the master device. Running the **clear cts** [**environment-data** | **pac**] on the slave device displays the following error message:

  This command is only permitted on the master device.

Examples

The following examples show how to clear data from the ASA used for the ASA integration with Cisco TrustSec:

```
hostname# clear cts pac
Are you sure you want to delete the cts PAC? (y/n)

hostname# clear cts environment-data
Are you sure you want to delete the cts environment data? (y/n)
```

Related Commands

Command	Description
clear configure all	Clears the entire running configuration on the ASA.
clear configure cts	Clears the configuration for integrating the ASA with Cisco TrustSec.
cts sxp enable	Enables the SXP protocol on the ASA.

clear dhcpd

To clear the DHCP server bindings and statistics, use the **clear dhcp** command in privileged EXEC mode.

clear dhcpd {**binding** [*ip_address*] | **statistics**}

Syntax Description

binding	Clears all the client address bindings.
ip_address	(Optional) Clears the binding for the specified IP address.
statistics	Clears statistical information counters.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

If you include the optional IP address in the **clear dhcpd binding** command, only the binding for that IP address is cleared.

To clear all of the DHCP server commands, use the **clear configure dhcpd** command.

Examples

The following example shows how to clear the **dhcpd** statistics:

```
hostname# clear dhcpd statistics
```

Related Commands

Command	Description
clear configure dhcpd	Removes all DHCP server settings.
show dhcpd	Displays DHCP binding, statistic, or state information.

clear dhcprelay statistics

To clear the DHCP relay statistic counters, use the **clear dhcprelay statistics** command in privileged EXEC mode.

clear dhcprelay statistics

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **clear dhcprelay statistics** command only clears the DHCP relay statistic counters. To clear the entire DHCP relay configuration, use the **clear configure dhcprelay** command.

Examples

The following example shows how to clear the DHCP relay statistics:

```
hostname# clear dhcprelay statistics
hostname#
```

Related Commands

Command	Description
clear configure dhcprelay	Removes all DHCP relay agent settings.
debug dhcprelay	Displays debugging information for the DHCP relay agent.
show dhcprelay statistics	Displays DHCP relay agent statistic information.
show running-config dhcprelay	Displays the current DHCP relay agent configuration.

clear dns

To clear all IP addresses associated with the specified fully qualified domain name (FQDN) host, use the **clear dns** command in privileged EXEC mode.

clear dns [**host** *fqdn_name*]

Syntax Description

fqdn_name	(Optional) Specifies the fully qualified domain name of the selected host.
host	(Optional) Indicates the IP address of the specified host.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.4(2)	This command was introduced.

Examples

The following example clears the IP address associated with the specified FQDN host:

```
hostname# clear dns 10.1.1.2 www.example.com
```

Note The setting of the **dns expire-entry** keyword is ignored for this command. New DNS queries are sent for each activated FQDN host.

Related Commands

Command	Description
dns domain-lookup	Enables the ASA to perform a name lookup.
dns name-server	Configures a DNS server address.
dns retries	Specifies the number of times to retry the list of DNS servers when the ASA does not receive a response.
dns timeout	Specifies the amount of time to wait before trying the next DNS server.
show dns-hosts	Shows the DNS cache.

clear dns-hosts cache

To clear the DNS cache, use the **clear dns-hosts cache** command in privileged EXEC mode.

clear dns-hosts cache

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command does not clear static entries that you added with the **name** command.

Examples

The following example clears the DNS cache:

```
hostname# clear dns-hosts cache
```

Related Commands

Command	Description
dns domain-lookup	Enables the ASA to perform a name lookup.
dns name-server	Configures a DNS server address.
dns retries	Specifies the number of times to retry the list of DNS servers when the ASA does not receive a response.
dns timeout	Specifies the amount of time to wait before trying the next DNS server.
show dns-hosts	Shows the DNS cache.

clear dynamic-filter dns-snoop

To clear Botnet Traffic Filter DNS snooping data, use the **clear dynamic-filter dns-snoop** command in in privileged EXEC mode.

clear dynamic-filter dns-snoop

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Examples

The following example clears all Botnet Traffic Filter DNS snooping data:

```
hostname# clear dynamic-filter dns-snoop
```

Related Commands

Command	Description
address	Adds an IP address to the blacklist or whitelist.
clear configure dynamic-filter	Clears the running Botnet Traffic Filter configuration.
clear dynamic-filter reports	Clears Botnet Traffic filter report data.
clear dynamic-filter statistics	Clears Botnet Traffic filter statistics.
dns domain-lookup	Enables the ASA to send DNS requests to a DNS server to perform a name lookup for supported commands.
dns server-group	Identifies a DNS server for the ASA.
dynamic-filter ambiguous-is-black	Treats greylisted traffic as blacklisted traffic for action purposes.
dynamic-filter blacklist	Edits the Botnet Traffic Filter blacklist.
dynamic-filter database fetch	Manually retrieves the Botnet Traffic Filter dynamic database.
dynamic-filter database find	Searches the dynamic database for a domain name or IP address.

Command	Description
dynamic-filter database purge	Manually deletes the Botnet Traffic Filter dynamic database.
dynamic-filter drop blacklist	Automatically drops blacklisted traffic.
dynamic-filter enable	Enables the Botnet Traffic Filter for a class of traffic or for all traffic if you do not specify an access list.
dynamic-filter updater-client enable	Enables downloading of the dynamic database.
dynamic-filter use-database	Enables use of the dynamic database.
dynamic-filter whitelist	Edits the Botnet Traffic Filter whitelist.
inspect dns dynamic-filter-snoop	Enables DNS inspection with Botnet Traffic Filter snooping.
name	Adds a name to the blacklist or whitelist.
show asp table dynamic-filter	Shows the Botnet Traffic Filter rules that are installed in the accelerated security path.
show dynamic-filter data	Shows information about the dynamic database, including when the dynamic database was last downloaded, the version of the database, how many entries the database contains, and 10 sample entries.
show dynamic-filter dns-snoop	Shows the Botnet Traffic Filter DNS snooping summary, or with the **detail** keyword, the actual IP addresses and names.
show dynamic-filter reports	Generates reports of the top 10 botnet sites, ports, and infected hosts.
show dynamic-filter statistics	Shows how many connections were monitored with the Botnet Traffic Filter, and how many of those connections match the whitelist, blacklist, and greylist.
show dynamic-filter updater-client	Shows information about the updater server, including the server IP address, the next time the ASA will connect with the server, and the database version last installed.
show running-config dynamic-filter	Shows the Botnet Traffic Filter running configuration.

clear dynamic-filter reports

To clear report data for the Botnet Traffic Filter, use the **clear dynamic-filter reports** command in privileged EXEC mode.

clear dynamic-filter reports {**top** [**malware-sites** | **malware-ports** | **infected-hosts**] | **infected-hosts**}

Syntax Description

malware-ports	(Optional) Clears report data for the top 10 malware ports.
malware-sites	(Optional) Clears report data for the top 10 malware sites.
infected-hosts (**top**)	(Optional) Clears report data for the top 10 infected hosts.
top	Clears report data for the top 10 malware sites, ports, and infected hosts.
infected-hosts	Clears report data for infected hosts.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
8.2(1)	This command was introduced.
8.2(2)	The **botnet-sites** and **botnet-ports** keywords were changed to **malware-sites** and **malware-ports**. The **top** keyword was added to differentiate clearing the top 10 reports and the new infected-hosts reports. The **infected-hosts** keyword was added (without **top**).

Examples

The following example clears all Botnet Traffic Filter top 10 report data:

```
hostname# clear dynamic-filter reports top
```

The following example clears only the top 10 malware sites report data:

```
hostname# clear dynamic-filter reports top malware-sites
```

The following example clears all infected hosts report data:

```
hostname# clear dynamic-filter reports infected-hosts
```

Related Commands

Command	Description
address	Adds an IP address to the blacklist or whitelist.
clear configure dynamic-filter	Clears the running Botnet Traffic Filter configuration.
clear dynamic-filter dns-snoop	Clears Botnet Traffic Filter DNS snooping data.
clear dynamic-filter statistics	Clears Botnet Traffic filter statistics.
dns domain-lookup	Enables the ASA to send DNS requests to a DNS server to perform a name lookup for supported commands.
dns server-group	Identifies a DNS server for the ASA.
dynamic-filter ambiguous-is-black	Treats greylisted traffic as blacklisted traffic for action purposes.
dynamic-filter blacklist	Edits the Botnet Traffic Filter blacklist.
dynamic-filter database fetch	Manually retrieves the Botnet Traffic Filter dynamic database.
dynamic-filter database find	Searches the dynamic database for a domain name or IP address.
dynamic-filter database purge	Manually deletes the Botnet Traffic Filter dynamic database.
dynamic-filter drop blacklist	Automatically drops blacklisted traffic.
dynamic-filter enable	Enables the Botnet Traffic Filter for a class of traffic or for all traffic if you do not specify an access list.
dynamic-filter updater-client enable	Enables downloading of the dynamic database.
dynamic-filter use-database	Enables use of the dynamic database.
dynamic-filter whitelist	Edits the Botnet Traffic Filter whitelist.
inspect dns dynamic-filter-snoop	Enables DNS inspection with Botnet Traffic Filter snooping.
name	Adds a name to the blacklist or whitelist.
show asp table dynamic-filter	Shows the Botnet Traffic Filter rules that are installed in the accelerated security path.
show dynamic-filter data	Shows information about the dynamic database, including when the dynamic database was last downloaded, the version of the database, how many entries the database contains, and 10 sample entries.
show dynamic-filter dns-snoop	Shows the Botnet Traffic Filter DNS snooping summary, or with the **detail** keyword, the actual IP addresses and names.
show dynamic-filter reports infected-hosts	Generates reports of infected hosts.
show dynamic-filter reports top	Generates reports of the top 10 malware sites, ports, and infected hosts.
show dynamic-filter statistics	Shows how many connections were monitored with the Botnet Traffic Filter, and how many of those connections match the whitelist, blacklist, and greylist.
show dynamic-filter updater-client	Shows information about the updater server, including the server IP address, the next time the ASA will connect with the server, and the database version last installed.
show running-config dynamic-filter	Shows the Botnet Traffic Filter running configuration.

clear dynamic-filter statistics

To clear Botnet Traffic Filter statistics, use the **clear dynamic-filter statistics** command in in privileged EXEC mode.

clear dynamic-filter statistics [**interface** *name*]

Syntax Description

interface *name*	(Optional) Clears statistics for a particular interface.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Examples

The following example clears all Botnet Traffic Filter DNS statistics:

```
hostname# clear dynamic-filter statistics
```

Related Commands

Command	Description
dynamic-filter ambiguous-is-black	Treats greylisted traffic as blacklisted traffic for action purposes.
dynamic-filter drop blacklist	Automatically drops blacklisted traffic.
address	Adds an IP address to the blacklist or whitelist.
clear configure dynamic-filter	Clears the running Botnet Traffic Filter configuration.
clear dynamic-filter dns-snoop	Clears Botnet Traffic Filter DNS snooping data.
clear dynamic-filter reports	Clears Botnet Traffic filter report data.
dns domain-lookup	Enables the ASA to send DNS requests to a DNS server to perform a name lookup for supported commands.
dns server-group	Identifies a DNS server for the ASA.
dynamic-filter blacklist	Edits the Botnet Traffic Filter blacklist.
dynamic-filter database fetch	Manually retrieves the Botnet Traffic Filter dynamic database.

Command	Description
dynamic-filter database find	Searches the dynamic database for a domain name or IP address.
dynamic-filter database purge	Manually deletes the Botnet Traffic Filter dynamic database.
dynamic-filter enable	Enables the Botnet Traffic Filter for a class of traffic or for all traffic if you do not specify an access list.
dynamic-filter updater-client enable	Enables downloading of the dynamic database.
dynamic-filter use-database	Enables use of the dynamic database.
dynamic-filter whitelist	Edits the Botnet Traffic Filter whitelist.
inspect dns dynamic-filter-snoop	Enables DNS inspection with Botnet Traffic Filter snooping.
name	Adds a name to the blacklist or whitelist.
show asp table dynamic-filter	Shows the Botnet Traffic Filter rules that are installed in the accelerated security path.
show dynamic-filter data	Shows information about the dynamic database, including when the dynamic database was last downloaded, the version of the database, how many entries the database contains, and 10 sample entries.
show dynamic-filter dns-snoop	Shows the Botnet Traffic Filter DNS snooping summary, or with the **detail** keyword, the actual IP addresses and names.
show dynamic-filter reports infected-hosts	Generates reports of infected hosts.
show dynamic-filter reports top	Generates reports of the top 10 malware sites, ports, and infected hosts.
show dynamic-filter statistics	Shows how many connections were monitored with the Botnet Traffic Filter, and how many of those connections match the whitelist, blacklist, and greylist.
show dynamic-filter updater-client	Shows information about the updater server, including the server IP address, the next time the ASA will connect with the server, and the database version last installed.
show running-config dynamic-filter	Shows the Botnet Traffic Filter running configuration.

clear eigrp events

To clear the EIGRP event log, use the **clear eigrp events** command in privileged EXEC mode.

clear eigrp [*as-number*] **events**

Syntax Description

as-number	(Optional) Specifies the autonomous system number of the EIGRP process for which you are clearing the event log. Because the ASA only supports one EIGRP routing process, you do not need to specify the autonomous system number (process ID).

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

You can use the **show eigrp events** command to view the EIGRP event log.

Examples

The following example clears the EIGRP event log:

```
hostname# clear eigrp events
```

Related Commands

Command	Description
show eigrp events	Displays the EIGRP event log.

clear eigrp neighbors

To delete entries from the EIGRP neighbor table, use the **clear eigrp neighbors** command in privileged EXEC mode.

clear eigrp [*as-number*] **neighbors** [*ip-addr* | *if-name*] [**soft**]

Syntax Description

as-number	(Optional) Specifies the autonomous system number of the EIGRP process for which you are deleting neighbor entries. Because the ASA only supports one EIGRP routing process, you do not need to specify the autonomous system number (AS), which is the process ID.
if-name	(Optional) The name of an interface as specified by the **nameif** command. Specifying an interface name removes all neighbor table entries that were learned through this interface.
ip-addr	(Optional) The IP address of the neighbor you want to remove from the neighbor table.
soft	Causes the ASA to resynchronize with the neighbor without resetting the adjacency.

Defaults

If you do not specify a neighbor IP address or an interface name, all dynamic entries are removed from the neighbor table.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

The **clear eigrp neighbors** command does not remove neighbors defined using the **neighbor** command from the neighbor table. Only dynamically discovered neighbors are removed.

You can use the **show eigrp neighbors** command to view the EIGRP neighbor table.

Examples

The following example removes all entries from the EIGRP neighbor table:

```
hostname# clear eigrp neighbors
```

The following example removes all entries learned through the interface named “outside” from the EIGRP neighbor table:

```
hostname# clear eigrp neighbors outside
```

Related Commands

Command	Description
debug eigrp neighbors	Displays debugging information for EIGRP neighbors.
debug ip eigrp	Displays debugging information for EIGRP protocol packets.
show eigrp neighbors	Displays the EIGRP neighbor table.

clear eigrp topology

To delete entries from the EIGRP topology table, use the **clear eigrp topology** command in privileged EXEC mode.

clear eigrp [*as-number*] **topology** *ip-addr* [*mask*]

Syntax Description

as-number	(Optional) Specifies the autonomous system number of the EIGRP process. Because the ASA only supports one EIGRP routing process, you do not need to specify the autonomous system number (AS), which is the process ID.
ip-addr	The IP address to clear from the topology table.
mask	(Optional) The network mask to apply to the *ip-addr* argument.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

This command clears existing EIGRP entries from the EIGRP topology table. You can use the **show eigrp topology** command to view the topology table entries.

Examples

The following example removes entries in the 192.168.1.0 network from EIGRP topology table:

```
hostname# clear eigrp topology 192.168.1.0 255.255.255.0
```

Related Commands

Command	Description
show eigrp topology	Displays the EIGRP topology table.

clear failover statistics

To clear the failover statistic counters, use the **clear failover statistics** command in privileged EXEC mode.

clear failover statistics

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command clears the statistics displayed with the **show failover statistics** command and the counters in the Stateful Failover Logical Update Statistics section of the **show failover** command output. To remove the failover configuration, use the **clear configure failover** command.

Examples

The following example shows how to clear the failover statistic counters:

```
hostname# clear failover statistics
hostname#
```

Related Commands

Command	Description
debug fover	Displays failover debugging information.
show failover	Displays information about the failover configuration and operational statistics.

clear flow-export counters

To reset runtime counters that are associated with NetFlow data to zero, use the **clear flow-export counters** command in privileged EXEC mode.

clear flow-export counters

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.1(1)	This command was introduced.

Usage Guidelines

The runtime counters include statistical data as well as error data.

Examples

The following example shows how to reset runtime counters that are associated with NetFlow data:

```
hostname# clear flow-export counters
```

Related Commands

Commands	Description
flow-export destination *interface-name ipv4-address* | *hostname udp-port*	Specifies the IP address or hostname of the NetFlow collector, and the UDP port on which the NetFlow collector is listening.
flow-export template timeout-rate *minutes*	Controls the interval at which the template information is sent to the NetFlow collector.
logging flow-export-syslogs enable	Enables syslog messages after you have entered the **logging flow-export-syslogs disable** command, and the syslog messages that are associated with NetFlow data.
show flow-export counters	Displays all runtime counters in NetFlow.

clear fragment

To clear the operational data of the IP fragment reassembly module, enter the **clear fragment** command in privileged EXEC mode.

clear fragment {**queue** | **statistics**} [*interface*]

Syntax Description

interface	(Optional) Specifies the ASA interface.
queue	Clears the IP fragment reassembly queue.
statistics	Clears the IP fragment reassembly statistics.

Defaults

If an *interface* is not specified, the command applies to all interfaces.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	The command was separated into two commands, **clear fragment** and **clear configure fragment**, to separate clearing of the configuration data from the operational data.

Usage Guidelines

This command clears either the currently queued fragments that are waiting for reassembly (if the **queue** keyword is entered) or clears all IP fragment reassembly statistics (if the **statistics** keyword is entered). The statistics are the counters, which tell how many fragments chains were successfully reassembled, how many chains failed to be reassembled, and how many times the maximum size was crossed resulting in overflow of the buffer.

Examples

The following example shows how to clear the operational data of the IP fragment reassembly module:

```
hostname# clear fragment queue
```

Related Commands

Command	Description
clear configure fragment	Clears the IP fragment reassembly configuration and resets the defaults.
fragment	Provides additional management of packet fragmentation and improves compatibility with the NFS.

Command	Description
show fragment	Displays the operational data of the IP fragment reassembly module.
show running-config fragment	Displays the IP fragment reassembly configuration.

clear gc

To remove the garbage collection (GC) process statistics, use the **clear gc** command in privileged EXEC mode.

clear gc

Syntax Description

This command has no arguments or keywords.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to remove the GC process statistics:

```
hostname# clear gc
```

Related Commands

Command	Description
show gc	Displays the GC process statistics.

clear igmp counters

To clear all IGMP counters, use the **clear igmp counters** command in privileged EXEC mode.

clear igmp counters [*if_name*]

Syntax Description

if_name	The interface name, as specified by the **nameif** command. Including an interface name with this command causes only the counters for the specified interface to be cleared.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example clears the IGMP statistical counters:

```
hostname# clear igmp counters
```

Related Commands

Command	Description
clear igmp group	Clears discovered groups from the IGMP group cache.
clear igmp traffic	Clears the IGMP traffic counters.

clear igmp group

To clear discovered groups from the IGMP group cache, use the **clear igmp** command in privileged EXEC mode.

clear igmp group [*group* | **interface** *name*]

Syntax Description

group	IGMP group address. Specifying a particular group removes the specified group from the cache.
interface *name*	Interface name, as specified by the **namif** command. When specified, all groups associated with the interface are removed.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

If you do not specify a group or an interface, all groups are cleared from all interfaces. If you specify a group, only the entries for that group are cleared. If you specify an interface, then all groups on that interface are cleared. If you specify both a group and an interface, only the specified groups on the specified interface are cleared.

This command does not clear statically configured groups.

Examples

The following example shows how to clear all discovered IGMP groups from the IGMP group cache:

```
hostname# clear igmp group
```

Related Commands

Command	Description
clear igmp counters	Clears all IGMP counters.
clear igmp traffic	Clears the IGMP traffic counters.

clear igmp traffic

To clear the IGMP traffic counters, use the **clear igmp traffic** command in privileged EXEC mode.

clear igmp traffic

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example clears the IGMP statistical traffic counters:

```
hostname# clear igmp traffic
```

Related Commands

Command	Description
clear igmp group	Clears discovered groups from the IGMP group cache.
clear igmp counters	Clears all IGMP counters.

clear interface

To clear interface statistics, use the **clear interface** command in privileged EXEC mode.

clear interface [*physical_interface*[**.***subinterface*] | *mapped_name* | *interface_name*]

Syntax Description

interface_name	(Optional) Identifies the interface name set with the **nameif** command.
mapped_name	(Optional) In multiple context mode, identifies the mapped name if it was assigned using the **allocate-interface** command.
physical_interface	(Optional) Identifies the interface ID, such as **gigabitethernet0/1**. See the **interface** command for accepted values.
subinterface	(Optional) Identifies an integer between 1 and 4294967293 designating a logical subinterface.

Defaults

By default, this command clears all interface statistics.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

If an interface is shared among contexts, and you enter this command within a context, the ASA clears only statistics for the current context. If you enter this command in the system execution space, the ASA clears the combined statistics.

You cannot use the interface name in the system execution space, because the **nameif** command is only available within a context. Similarly, if you mapped the interface ID to a mapped name using the **allocate-interface** command, you can only use the mapped name in a context.

Examples

The following example clears all interface statistics:

```
hostname# clear interface
```

Related Commands

Command	Description
clear configure interface	Clears the interface configuration.
interface	Configures an interface and enters interface configuration mode.
show interface	Displays the runtime status and statistics of interfaces.
show running-config interface	Displays the interface configuration.

clear ip audit count

To clear the count of signature matches for an audit policy, use the **clear ip audit count** command in privileged EXEC mode.

clear ip audit count [**global** | **interface** *interface_name*]

Syntax Description

global	(Default) Clears the number of matches for all interfaces.
interface *interface_name*	(Optional) Clears the number of matches for the specified interface.

Defaults

If you do not specify a keyword, this command clears the matches for all interfaces (**global**).

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example clears the count for all interfaces:

```
hostname# clear ip audit count
```

Related Commands

Command	Description
ip audit interface	Assigns an audit policy to an interface.
ip audit name	Creates a named audit policy that identifies the actions to take when a packet matches an attack signature or an informational signature.
show ip audit count	Shows the count of signature matches for an audit policy.
show running-config ip audit attack	Shows the configuration for the **ip audit attack** command.

clear ip verify statistics

To clear the unicast RPF statistics, use the **clear ip verify statistics** command in privileged EXEC mode.

clear ip verify statistics [**interface** *interface_name*]

Syntax Description

interface *interface_name*	Sets the interface on which you want to clear unicast RPF statistics.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

See the **ip verify reverse-path** command to enable unicast RPF.

Examples

The following example clears the unicast RPF statistics:

```
hostname# clear ip verify statistics
```

Related Commands

Command	Description
clear configure ip verify reverse-path	Clears the **ip verify reverse-path** configuration.
ip verify reverse-path	Enables the unicast RPF feature to prevent IP spoofing.
show ip verify statistics	Shows the unicast RPF statistics.
show running-config ip verify reverse-path	Shows the **ip verify reverse-path** configuration.

clear ipsec sa

To clear IPsec SAs entirely or based on specified parameters, use the **clear ipsec sa** command in privileged EXEC mode.

clear ipsec sa [**counters** | **entry** *peer-addr protocol spi* | **peer** *peer-addr* | **map** *map-name*]

Syntax Description

counters	(Optional) Clears all counters.
entry	(Optional) Clears IPsec SAs for a specified IPsec peer, protocol and SPI.
inactive	(Optional) Clears IPsec SAs that are unable to pass traffic.
map *map-name*	(Optional) Clears IPsec SAs for the specified crypto map.
peer	(Optional) Clears IPsec SAs for a specified peer.
peer-addr	Specifies the IP address of an IPsec peer.
protocol	Specifies an IPsec protocol: **esp** or **ah**.
spi	Specifies an IPsec SPI.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

You can also use an alternate form of this command to perform the same function: **clear crypto ipsec sa**.

Examples

The following example, entered in global configuration mode, clears all IPsec SA counters:

```
hostname# clear ipsec sa counters
hostname#
```

Related Commands

Command	Description
show ipsec sa	Displays IPsec SAs based on specified parameters.
show ipsec stats	Displays global IPsec statistics from the IPsec flow MIB.

clear ipv6 access-list counters

To clear the IPv6 access list statistical counters, use the **clear ipv6 access-list counters** command in privileged EXEC mode.

clear ipv6 access-list *id* **counters**

Syntax Description

id	The IPv6 access list identifier.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to clear the statistical data for the IPv6 access list 2:

```
hostname# clear ipv6 access-list 2 counters
hostname#
```

Related Commands

Command	Description
clear configure ipv6	Clears the **ipv6 access-list** commands from the current configuration.
ipv6 access-list	Configures an IPv6 access list.
show ipv6 access-list	Displays the **ipv6 access-list** commands in the current configuration.

clear ipv6 dhcprelay binding

To clear the IPv6 DHCP relay binding entries, use the **clear ipv6 dhcprelay binding** command in privileged EXEC mode.

clear ipv6 dhcprelay binding [**ip**]

Syntax Description

ip	(Optional) Specifies the IPv6 address for the DHCP relay binding. If the IP address is specified, only the relay binding entries associated with that IP address are cleared.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Examples

The following example shows how to clear the statistical data for the IPv6 DHCP relay binding:

```
hostname# clear ipv6 dhcprelay binding
hostname#
```

Related Commands

Command	Description
show ipv6 dhcprelay binding	Shows the relay binding entries created by the relay agent.
show ipv6 dhcprelay statistics	Shows the IPv6 DHCP relay agent information.

clear ipv6 dhcprelay statistics

To clear the IPv6 DHCP relay agent statistics, use the **clear ipv6 dhcprelay statistics** command in privileged EXEC mode.

clear ipv6 dhcprelay statistics

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Examples

The following example shows how to clear the statistical data for the IPv6 DHCP relay agent:

```
hostname# clear ipv6 dhcprelay statistics
hostname#
```

Related Commands

Command	Description
show ipv6 dhcprelay binding	Shows the relay binding entries created by the relay agent.
show ipv6 dhcprelay statistics	Shows the DHCP relay agent information for IPv6.

clear ipv6 mld traffic

To clear the IPv6 Multicast Listener Discovery (MLD) traffic counters, use the **clear ipv6 mld traffic** command in privileged EXEC mode.

clear ipv6 mld traffic

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.2(4)	This command was introduced.

Usage Guidelines

The **clear ipv6 mld traffic** command allows you to reset all the MLD traffic counters.

Examples

The following example shows how to clear the traffic counters for IPv6 MLD:

```
hostname# clear ipv6 mld traffic
hostname#
```

Related Commands

Command	Description
debug ipv6 mld	Displays all debugging messages for MLD.
show debug ipv6 mld	Displays the MLD commands for IPv6 in the current configuration.

clear ipv6 neighbors

To clear the IPv6 neighbor discovery cache, use the **clear ipv6 neighbors** command in privileged EXEC mode.

clear ipv6 neighbors

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command deletes all discovered IPv6 neighbor from the cache; it does not remove static entries.

Examples

The following example deletes all entries, except static entries, in the IPv6 neighbor discovery cache:

```
hostname# clear ipv6 neighbors
hostname#
```

Related Commands

Command	Description
ipv6 neighbor	Configures a static entry in the IPv6 neighbor discovery cache.
show ipv6 neighbor	Displays IPv6 neighbor cache information.

clear ipv6 ospf

To clear OSPFv3 routing parameters, use the **clear ipv6 ospf** command in privileged EXEC mode.

clear ipv6 [*process_id*] [**counters**] [**events**] [**force-spf**] [**process**] [**redistribution**] [**traffic**]

Syntax Description

counters	Resets the OSPF process counters.
events	Clears the OSPF event log.
force-ospf	Clears the SPF for OSPF processes.
process	Resets the OSPFv3 process.
process_id	Clears the process ID number. Valid values range from 1 to 65535.
redistribution	Clears OSPFv3 route redistribution.
traffic	Clears traffic-related statistics.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

This command removes all OSPFv3 routing parameters.

Examples

The following example shows how to clear all OSPFv3 route redistribution:

```
hostname# clear ipv6 ospf redistribution
hostname#
```

Related Commands

Command	Description
show running-config ipv6 router	Shows the running configuration of OSPFv3 processes.
clear configure ipv6 router	Clears OSPFv3 routing processes.

clear ipv6 traffic

To reset the IPv6 traffic counters, use the **clear ipv6 traffic** command in privileged EXEC mode.

clear ipv6 traffic

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Using this command resets the counters in the output from the **show ipv6 traffic** command.

Examples

The following example resets the IPv6 traffic counters. The output from the **ipv6 traffic** command shows that the counters have been reset:

```
hostname# clear ipv6 traffic
hostname# show ipv6 traffic
IPv6 statistics:
  Rcvd:  1 total, 1 local destination
         0 source-routed, 0 truncated
         0 format errors, 0 hop count exceeded
         0 bad header, 0 unknown option, 0 bad source
         0 unknown protocol, 0 not a router
         0 fragments, 0 total reassembled
         0 reassembly timeouts, 0 reassembly failures
  Sent:  1 generated, 0 forwarded
         0 fragmented into 0 fragments, 0 failed
         0 encapsulation failed, 0 no route, 0 too big
  Mcast: 0 received, 0 sent

ICMP statistics:
  Rcvd: 1 input, 0 checksum errors, 0 too short
        0 unknown info type, 0 unknown error type
        unreach: 0 routing, 0 admin, 0 neighbor, 0 address, 0 port
        parameter: 0 error, 0 header, 0 option
        0 hopcount expired, 0 reassembly timeout,0 too big
```

```
        0 echo request, 0 echo reply
        0 group query, 0 group report, 0 group reduce
        0 router solicit, 0 router advert, 0 redirects
        0 neighbor solicit, 1 neighbor advert
  Sent: 1 output
        unreach: 0 routing, 0 admin, 0 neighbor, 0 address, 0 port
        parameter: 0 error, 0 header, 0 option
        0 hopcount expired, 0 reassembly timeout,0 too big
        0 echo request, 0 echo reply
        0 group query, 0 group report, 0 group reduce
        0 router solicit, 0 router advert, 0 redirects
        0 neighbor solicit, 1 neighbor advert

UDP statistics:
  Rcvd: 0 input, 0 checksum errors, 0 length errors
        0 no port, 0 dropped
  Sent: 0 output

TCP statistics:
  Rcvd: 0 input, 0 checksum errors
  Sent: 0 output, 0 retransmitted
```

Related Commands

Command	Description
show ipv6 traffic	Displays IPv6 traffic statistics.

clear isakmp sa

To remove all of the IKE runtime SA database, use the **clear isakmp sa** command in global configuration or privileged EXEC mode.

clear isakmp sa

Syntax Description

This command has no keywords or arguments.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	The **clear isakmp sa** command was changed to **clear crypto isakmp sa**.
9.0(1)	Support for multiple context mode was added.

Examples

The following example removes the IKE runtime SA database from the configuration:

```
hostname# clear isakmp sa
hostname#
```

Related Commands

Command	Description
clear isakmp	Clears the IKE runtime SA database.
isakmp enable	Enables ISAKMP negotiation on the interface on which the IPsec peer communicates with the ASA.
show isakmp stats	Displays runtime statistics.
show isakmp sa	Displays IKE runtime SA database with additional information.
show running-config isakmp	Displays all the active ISAKMP configuration.

CHAPTER 9

clear local-host through clear xlate Commands

clear local-host

To reinitalize per-client run-time states such as connection limits and embryonic limits, use the **clear local-host** command in privileged EXEC mode. t

clear local-host [*ip_address*] [**all**]

Syntax Description

all	(Optional) Clears all connections, including to-the-box traffic. Without the **all** keyword, only through-the-box traffic is cleared.
ip_address	(Optional) Specifies the local host IP address.

Defaults

Clears all through-the-box run-time states.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

When you make security policy changes to the configuration, all *new* connections use the new security policy. Existing connections continue to use the policy that was configured at the time of the connection establishment. To ensure that all connections use the new policy, you need to disconnect the current connections so they can reconnect using the new policy using the **clear local-host** command. You can alternatively use the **clear conn** command for more granular connection clearing, or the **clear xlate** command for connections that use dynamic NAT.

The **clear local-host** command releases the hosts from the host license limit. You can see the number of hosts that are counted toward the license limit by entering the **show local-host** command.

Examples

The following example clears the run-time state and assocaited connections for the host 10.1.1.15:

```
hostname# clear local-host 10.1.1.15
```

Related Commands

Command	Description
clear conn	Terminates connections in any state.
clear xlate	Clears a dynamic NAT session, and any connections using NAT.
show local-host	Displays the network states of local hosts.

clear logging asdm

To clear the ASDM logging buffer, use the **clear logging asdm** command in privileged EXEC mode.

clear logging asdm

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was changed from the **clear pdm logging** command to the **clear asdm log** command.

Usage Guidelines

ASDM system log messages are stored in a separate buffer from the ASA system log messages. Clearing the ASDM logging buffer only clears the ASDM system log messages; it does not clear the ASA system log messages. To view the ASDM system log messages, use the **show asdm log** command.

Examples

The following example clears the ASDM logging buffer:

```
hostname(config)# clear logging asdm
hostname(config)#
```

Related Commands

Command	Description
show asdm log_sessions	Displays the contents of the ASDM logging buffer.

clear logging buffer

To clear the log buffer, use the **clear logging buffer** command in privileged EXEC mode.

clear logging buffer

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

This example shows how to clear the contents of the log buffer:

```
hostname# clear logging buffer
```

Related Commands

Command	Description
logging buffered	Configures the log buffer.
show logging	Displays logging information.

clear logging queue bufferwrap

To clear the saved log buffers (ASDM, internal, FTP, and flash), use the **clear logging queue bufferwrap** command in privileged EXEC mode.

clear logging queue bufferwrap

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Examples

The following example shows how to clear the contents of the saved log buffers:

```
hostname# clear logging queue bufferwrap
```

Related Commands

Command	Description
logging buffered	Configures the log buffer.
show logging	Displays logging information.

clear mac-address-table

To clear dynamic MAC address table entries, use the **clear mac-address-table** command in privileged EXEC mode.

clear mac-address-table [*interface_name*]

Syntax Description

interface_name	(Optional) Clears the MAC address table entries for the selected interface.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	—	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example clears the dynamic MAC address table entries:

```
hostname# clear mac-address-table
```

Related Commands

Command	Description
arp	Adds a static ARP entry.
firewall transparent	Sets the firewall mode to transparent.
mac-address-table aging-time	Sets the timeout for dynamic MAC address entries.
mac-learn	Disables MAC address learning.
show mac-address-table	Shows MAC address table entries.

clear memory delayed-free-poisoner

To clear the delayed free-memory poisoner tool queue and statistics, use the **clear memory delayed-free-poisoner** command in privileged EXEC mode.

clear memory delayed-free-poisoner

Syntax Description

This command has no arguments or keywords.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **clear memory delayed-free-poisoner** command returns all memory held in the delayed free-memory poisoner tool queue to the system without validation and clears the related statistical counters.

Examples

The following example clears the delayed free-memory poisoner tool queue and statistics:

```
hostname# clear memory delayed-free-poisoner
```

Related Commands

Command	Description
memory delayed-free-poisoner enable	Enables the delayed free-memory poisoner tool.
memory delayed-free-poisoner validate	Forces validation of the delayed free-memory poisoner tool queue.
show memory delayed-free-poisoner	Displays a summary of the delayed free-memory poisoner tool queue usage.

clear memory profile

To clear the memory buffers held by the memory profiling function, use the **clear memory profile** command in privileged EXEC mode.

clear memory profile [peak]

Syntax Description

peak	(Optional) Clears the contents of the peak memory buffer.

Defaults

Clears the current "in use" profile buffer by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	—	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **clear memory profile** command releases the memory buffers held by the profiling function, and therefore requires that profiling stop before it is cleared.

Examples

The following example clears the memory buffers held by the profiling function:

```
hostname# clear memory profile
```

Related Commands

Command	Description
memory profile enable	Enables the monitoring of memory usage (memory profiling).
memory profile text	Configures a text range of memory to profile.
show memory profile	Displays information about the memory usage (profiling) of the ASA.

clear mfib counters

To clear MFIB router packet counters, use the **clear mfib counters** command in privileged EXEC mode.

clear mfib counters [*group* [*source*]]

Syntax Description

group	(Optional) IP address of the multicast group.
source	(Optional) IP address of the multicast route source. This is a unicast IP address in four-part dotted-decimal notation.

Defaults

When this command is used with no arguments, route counters for all routes are cleared.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example clears all MFIB router packet counters:

```
hostname# clear mfib counters
```

Related Commands

Command	Description
show mfib count	Displays MFIB route and packet count data.

clear module

To clear information about the SSM on the ASAs, information about the SSC on the ASA 5505, information about the SSP installed on the ASA 5585-X, information about the IPS SSP installed on the ASA 5585-X, information about the ASA Services Module, and system information, use the **clear module** command in privileged EXEC mode.

clear module [*mod_id* | *slot*] [**all** | [**details** | **recover** | **log** [**console**]]]

Syntax Description

all	(Default) Clears all SSM information.
console	(Optional) Clears console log information for the module.
details	(Optional) Clears additional information, including remote management configuration for SSMs (for example, ASA-SSM-*x*0).
log	(Optional) Clears log information for the module.
mod_id	Clears the module name used for software modules, such as IPS.
recover	(Optional) For SSMs, clears the settings for the **hw-module module recover** command. **Note** The **recover** keyword is valid only when you have created a recovery configuration for the SSM by using the **configure** keyword with the **hw-module module recover** command. (Optional) For an IPS module installed on the ASA 5512-X, 5515-X, 5525-X, 5545-X, or 5555-X, clears the settings for the **sw-module module** *mod_id* **recover configure image** *image_location* command.
slot	Clears the module slot number, which can be 0 or 1.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.
8.2(1)	Supports the SSC.
8.2(5)	Supports the ASA 5585-X and the IPS SSP on the ASA 5585-X.
8.4(2)	Supports a dual SSP installation.

Release	Modification
8.5(1)	Supports the ASASM.
8.6(1)	Supports the ASA 5512-X, 5515-X, 5525-X, 5545-X, and 5555-X.

Usage Guidelines

This command clears information about the SSC, SSM, ASASM, IPS SSP, and device and built-in interfaces.

Examples

The following example clears the recovery settings for an SSM:

```
hostname# clear module 1 recover
```

Related Commands

Command	Description
hw-module module recover	Recovers an SSM by loading a recovery image from a TFTP server.
hw-module module reset	Shuts down an SSM and performs a hardware reset.
hw-module module reload	Reloads the SSM software.
hw-module module shutdown	Shuts down the SSM software in preparation for being powered off without losing configuration data.
show module	Shows SSM information.

clear nac-policy

To reset NAC policy usage statistics, use the **clear nac-policy** command in global configuration mode.

clear nac-policy [*nac-policy-name*]

Syntax Description

nac-policy-name	(Optional) Name of the NAC policy for which to reset usage statistics.

Defaults

If you do not specify a name, the CLI resets the usage statistics for all NAC policies.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	—	—	•

Command History

Release	Modification
8.0(2)	This command was introduced.

Examples

The following example resets the usage statistics for the NAC policy named framework1:

```
hostname(config)# clear nac-policy framework1
```

The following example resets all NAC policy usage statistics:

```
hostname(config)# clear nac-policy
```

Related Commands

Command	Description
show nac-policy	Displays NAC policy usage statistics on the ASA.
show vpn-session_summary.db	Displays the number of IPsec, WebVPN, and NAC sessions.
show vpn-session.db	Displays information about VPN sessions, including NAC results.

clear nat counters

To clear NAT policy counters, use the **clear nat counters** command in global configuration mode.

clear nat counters [*src_ifc* [*src_ip* [*src_mask*]] [*dst_ifc* [*dst_ip* [*dst_mask*]]]]

Syntax Description

dst_ifc	(Optional) Specifies destination interface to filter.
dst_ip	(Optional) Specifies destination IP address to filter.
dst_mask	(Optional) Specifies mask for destination IP address.
src_ifc	(Optional) Specifies source interface to filter.
src_ip	(Optional) Specifies source IP address to filter.
src_mask	(Optional) Specifies mask for source IP address.

Defaults

This command has no default settings.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0 (4)	This command was introduced.

Examples

This example shows how to clear the NAT policy counters:

```
hostname(config)# clear nat counters
```

Related Commands

Command	Description
nat	Identifies addresses on one interface that are translated to mapped addresses on another interface.
nat-control	Enables or disables NAT configuration requirements.
show nat counters	Displays the protocol stack counters.

clear object-group

To clear the hit counts of objects in a network object group, use the **show object-group** command in privileged EXEC mode.

clear object-group *obj-name* **counters**

Syntax Description

counters	Identifies the counters in the network object group.
obj-name	Identifies the existing network object group.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.3(1)	This command was introduced.

Usage Guidelines

Use this command to clear hit counts of objects in a network object group only.

Examples

The following example shows how to clear the network object hit count for the network object group named “Anet”:

```
hostname# clear object-group Anet counters
```

Related Commands

Command	Description
show object-group	Shows object group information and shows hit counts if the specified object group is of the network object-group type.

clear ospf

To clear OSPF process information, use the **clear ospf** command in privileged EXEC mode.

clear ospf [*pid*] {**process** | **counters**}

Syntax Description

counters	Clears the OSPF counters.
pid	(Optional) Internally used identification parameter for an OSPF routing process; valid values are from 1 to 65535.
process	Restarts the OSPF routing process.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

This command does not remove any part of the configuration. Use the **no** form of the configuration commands to clear specific commands from the configuration or use the **clear configure router ospf** command to remove all global OSPF commands from the configuration.

Note The **clear configure router ospf** command does not clear OSPF commands entered in interface configuration mode.

Examples

The following example shows how to clear the OSPF neighbor counters:

```
hostname# clear ospf counters
```

Related Commands

Command	Description
clear configure router	Clears all global router commands from the running configuration.

clear pclu

To clear PC logical update statistics, use the **clear pclu** command in privileged EXEC mode.

clear pclu

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example clears PC information:

```
hostname# clear pclu
```

clear phone-proxy secure-phones

To clear the secure phone entries in the phone proxy database, use the **clear phone-proxy secure-phones** command in privileged EXEC mode.

clear phone-proxy secure-phones [*mac_address* | **noconfirm]**

Syntax Description

mac_address	Removes the IP phone from the phone proxy database with the specified MAC address.
noconfirm	Removes all the secure phone entries in the phone proxy database without prompting for confirmation. If you do not specify the **noconfirm** keyword, you are prompted to confirm whether to remove all the secure phone entries.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

Because secure phones always request a CTL file upon bootup, the phone proxy creates a database that marks the phone as secure. The entries in the secure phone database are removed after a specified configured timeout (via the **timeout secure-phones** command). Alternatively, you can use the **clear phone-proxy secure-phones** command to clear the phone proxy database without waiting for the configured timeout.

Examples

The following example clears secure entries in the phone proxy database:

```
hostname# clear phone-proxy secure-phones 001c.587a.4000
```

Related Commands

Command	Description
timeout secure-phones	Configures the idle timeout after which the secure phone entry is removed from the phone proxy database.

clear pim counters

To clear the PIM traffic counters, use the **clear pim counters** command in privileged EXEC mode.

clear pim counters

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command only clears the traffic counters. To clear the PIM topology table, use the **clear pim topology** command.

Examples

The following example clears the PIM traffic counters:

```
hostname# clear pim counters
```

Related Commands

Command	Description
clear pim reset	Forces MRIB synchronization through reset.
clear pim topology	Clears the PIM topology table.
show pim traffic	Displays the PIM traffic counters.

clear pim reset

To force MRIB synchronization through reset, use the **clear pim reset** command in privileged EXEC mode.

clear pim reset

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

All information from the topology table is cleared, and the MRIB connection is reset. This command can be used to synchronize states between the PIM topology table and the MRIB database.

Examples

The following example clears the topology table and resets the MRIB connection:

```
hostname# clear pim reset
```

Related Commands

Command	Description
clear pim counters	Clears PIM counters and statistics.
clear pim topology	Clears the PIM topology table.
clear pim counters	Clears PIM traffic counters.

clear pim topology

To clear the PIM topology table, use the **clear pim topology** command in privileged EXEC mode.

clear pim topology [*group*]

Syntax Description

group	(Optional) Specifies the multicast group address or name to be deleted from the topology table.

Defaults

Without the optional *group* argument, all entries are cleared from the topology table.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command clears existing PIM routes from the PIM topology table. Information obtained from the MRIB table, such as IGMP local membership, is retained. If a multicast group is specified, only those group entries are cleared.

Examples

The following example clears the PIM topology table:

```
hostname# clear pim topology
```

Related Commands

Command	Description
clear pim counters	Clears PIM counters and statistics.
clear pim reset	Forces MRIB synchronization through reset.
clear pim counters	Clears PIM traffic counters.

clear priority-queue statistics

To clear the priority-queue statistics counters for an interface or for all configured interfaces, use the **clear priority-queue statistics** command in either global configuration or privileged EXEC mode.

clear priority-queue statistics [*interface-name*]

Syntax Description

interface-name	(Optional) Specifies the name of the interface for which you want to show the best-effort and low-latency queue details.

Defaults

If you omit the interface name, this command clears the priority-queue statistics for all configured interfaces.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows the use of the **clear priority-queue statistics** command in privileged EXEC mode to remove the priority queue statistics for the interface named “test”:

```
hostname# clear priority-queue statistics test
hostname#
```

Related Commands

Command	Description
clear configure priority queue	Removes the priority-queue configuration from the named interface.
priority-queue	Configures priority queueing on an interface.
show priority-queue statistics	Shows the priority queue statistics for a specified interface or for all interfaces.
show running-config priority-queue	Shows the current priority-queue configuration on the named interface.

clear process

To clear statistics for specified processes running on the ASA, use the **clear process** command in privileged EXEC mode.

clear process [**cpu-hog** | **internals**]

Syntax Description

cpu-hog	Clears CPU hogging statistics.
internals	Clears process internal statistics.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to clear CPU hogging statistics:

```
hostname# clear process cpu-hog
hostname#
```

Related Commands

Command	Description
show processes	Displays a list of the processes that are running on the ASA.

clear resource usage

To clear resource usage statistics, use the **clear resource usage** command in privileged EXEC mode.

clear resource usage [**context** *context_name* | **all** | **summary** | **system**] [**resource** {[**rate**] *resource_name* | **all**}]

Syntax Description

context *context_name*	(Multiple mode only) Specifies the context name for which you want to clear statistics. Specify **all** (the default) for all contexts.
resource [**rate**] *resource_name*	Clears the usage of a specific resource. Specify **all** (the default) for all resources. Specify **rate** to clear the rate of usage of a resource. Resources that are measured by rate include **conns**, **inspects**, and **syslogs**. You must specify the **rate** keyword with these resource types. The conns resource is also measured as concurrent connections; only use the **rate** keyword to view the connections per second. Resources include the following types: • **asdm**—ASDM management sessions. • **conns**—TCP or UDP connections between any two hosts, including connections between one host and multiple other hosts. • **inspects**—Application inspections. • **hosts**—Hosts that can connect through the ASA. • **mac-addresses**—For transparent firewall mode, the number of MAC addresses allowed in the MAC address table. • **ssh**—SSH sessions. • **syslogs**—Syslog messages. • **telnet**—Telnet sessions. • (Multiple mode only) **VPN Other**—Site-to-site VPN sessions. • (Multiple mode only) **VPN Burst Other**—Site-to-site VPN burst sessions. • **xlates**—NAT translations.
summary	(Multiple mode only) Clears the combined context statistics.
system	(Multiple mode only) Clears the system-wide (global) usage statistics.

Defaults

For multiple context mode, the default context is **all**, which clears resource usage for every context. For single mode, the context name is ignored and all resource statistics are cleared.

The default resource name is **all**, which clears all resource types.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example clears all resource usage statistics for all contexts, but not the system-wide usage statistics:

```
hostname# clear resource usage
```

The following example clears the system-wide usage statistics:

```
hostname# clear resource usage system
```

Related Commands

Command	Description
context	Adds a security context.
show resource types	Shows a list of resource types.
show resource usage	Shows the resource usage of the ASA.

clear route

To remove dynamically learned routes from the configuration, use the **clear route** command in privileged EXEC mode.

clear route [*interface_name*]

Syntax Description

interface_name	(Optional) Internal or external network interface name.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to remove dynamically learned routes:

```
hostname# clear route
```

Related Commands

Command	Description
route	Specifies a static or default route for the an interface.
show route	Displays route information.
show running-config route	Displays configured routes.

clear service-policy

To clear operational data or statistics (if any) for enabled policies, use the **clear service-policy** command in privileged EXEC mode.

clear service-policy [**global** | **interface** *intf*] [**user-statistics**]

Syntax Description

global	(Optional) Clears the statistics of the global service policy.
interface *intf*	(Optional) Clears the service policy statistics of a specific interface.
user-statistics	(Optional) Clears the global counters for user statistics but does not clear the per-user statistics. Per-user or per-user-group statistics can still be seen using **show user-identity statistics** command. When the **accounting** keyword for the **user-statistics** command is specified, all global counters for sent packets, received packets, and sent dropped packets are cleared. When the **scanning** keyword **user-statistics** command is specified, the global counter for sent dropped packets is cleared. For the ASA to collect these user statistics, you must configure a policy map to collect user statistics. See the **user-statistics** command in this guide.

Defaults

By default, this command clears all the statistics for all enabled service policies.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To clear service policy startistics for inspection engines, see the **clear service-policy inspect** commands.

Examples

The following example shows the syntax of the **clear service-policy** command:

```
hostname# clear service-policy outside_security_map interface outside
```

Related Commands

Command	Description
clear service-policy inspect gtp	Clears service policy statistics for the GTP inspection engine.
clear service-policy inspect radius-accounting	Clears service policy statistics for the RADIUS accounting inspection engine.
show service-policy	Displays the service policy.
show running-config service-policy	Displays the service policies configured in the running configuration.
clear configure service-policy	Clears service policy configurations.
service-policy	Configures service policies.

clear service-policy inspect gtp

To clear global GTP statistics, use the **clear service-policy inspect gtp** command in privileged EXEC mode.

clear service-policy inspect gtp {**pdp-context** [**all** | **apn** *ap_name* | **imsi** *IMSI_value* | **ms-addr** *IP_address* | **tid** *tunnel_ID* | **version** *version_num*] | **requests** | **statistics** [**gsn** *IP_address*] }

Syntax Description.

all	Clears all GTP PDP contexts.
apn	(Optional) Clears the PDP contexts based on the APN specified.
ap_name	Identifies the specific access point name.
gsn	(Optional) Identifies the GPRS support node, which is the interface between the GPRS wireless data network and other networks.
gtp	(Optional) Clears the service policy for GTP.
imsi	(Optional) Clears the PDP contexts based on the IMSI specified.
IMSI_value	Hexadecimal value that identifies the specific IMSI.
interface	(Optional) Identifies a specific interface.
int	Identifies the interface for which information will be cleared.
IP_address	IP address for which statistics will be cleared.
ms-addr	(Optional) Clears PDP contexts based on the MS Address specified.
pdp-context	(Optional) Identifies the Packet Data Protocol context.
requests	(Optional) Clears GTP requests.
statistics	(Optional) Clears GTP statistics for the **inspect gtp** command.
tid	(Optional) Clears the PDP contexts based on the TID specified.
tunnel_ID	Hexadecimal value that identifies the specific tunnel.
version	(Optional) Clears the PDP contexts based on the GTP version.
version_num	Specifies the version of the PDP context. The valid range is 0 to 255.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The Packet Data Protocol context is identified by the tunnel ID, which is a combination of IMSI and NSAPI. A GTP tunnel is defined by two associated PDP contexts in different GSN nodes and is identified with a tunnel ID. A GTP tunnel is necessary to forward packets between an external packet data network and a mobile station (MS) user.

Examples

The following example clears GTP statistics:

```
hostname# clear service-policy inspect gtp statistics
```

Related Commands

Commands	Description
debug gtp	Displays detailed information about GTP inspection.
gtp-map	Defines a GTP map and enables GTP map configuration mode.
inspect gtp	Applies a GTP map to use for application inspection.
show service-policy inspect gtp	Displays the GTP configuration.
show running-config gtp-map	Shows the GTP maps that have been configured.

clear service-policy inspect radius-accounting

To clear RADIUS accounting users, use the **clear service-policy inspect radius-accounting** command in privileged EXEC mode.

clear service-policy inspect radius-accounting users {**all** | *ip_address* | *policy_map*}

Syntax Description.

all	Clears all users.
ip_address	Clears a user with this IP address.
policy_map	Clears users associated with this policy map.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example clears all RADIUS accounting users:

```
hostname# clear service-policy inspect radius-accounting users all
```

clear shared license

To reset shared license statistics, shared license client statistics, and shared license backup server statistics to zero, use the **clear shared license** command in privileged EXEC mode.

clear shared license [**all** | **backup** | **client** [*hostname*]]

Syntax Description

all	(Optional) Clears all statistics. This is the default setting.
backup	(Optional) Clears statistics for the backup server.
client	(Optional) Clears statistics for all participants.
hostname	(Optional) Clears statistics for a particular participant.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•		—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

The shared license counters include statistical data as well as error data.

Examples

The following example shows how to reset all shared license counters:

```
hostname# clear shared license all
```

Related Commands

Command	Description
activation-key	Enters a license activation key.
clear configure license-server	Clears the shared licensing server configuration.
license-server address	Identifies the shared licensing server IP address and shared secret for a participant.
license-server backup address	Identifies the shared licensing backup server for a participant.
license-server backup backup-id	Identifies the backup server IP address and serial number for the main shared licensing server.

Command	Description
license-server backup enable	Enables a unit to be the shared licensing backup server.
license-server enable	Enables a unit to be the shared licensing server.
license-server port	Sets the port on which the server listens for SSL connections from participants.
license-server refresh-interval	Sets the refresh interval provided to participants to set how often they should communicate with the server.
license-server secret	Sets the shared secret on the shared licensing server.
show activation-key	Shows the current licenses installed.
show running-config license-server	Shows the shared licensing server configuration.
show shared license	Shows shared license statistics.
show vpn-sessiondb	Shows license information about VPN sessions.

clear shun

To disable all the shuns that are currently enabled and clear the shun statistics, use the **clear shun** command in privileged EXEC mode.

clear shun [*statistics*]

Syntax Description

statistics	(Optional) Clears the interface counters only.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to disable all the shuns that are currently enabled and clear the shun statistics:

```
hostname(config)# clear shun
```

Related Commands

Command	Description
shun	Enables a dynamic response to an attacking host by preventing new connections and disallowing packets from any existing connection.
show shun	Displays the shun information.

clear snmp-server statistics

To clear SNMP server statistics (SNMP packet input and output counters), use the **clear snmp-server statistics** command in privileged EXEC mode.

clear snmp-server statistics

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to clear SNMP server statistics:

```
hostname# clear snmp-server statistics
```

Related Commands

Command	Description
clear configure snmp-server	Clears the SNMP server configuration.
show snmp-server statistics	Displays SNMP server configuration information.

clear ssl

To clear SSL information for debugging purposes, use the **clear ssl** command in privileged EXEC mode.

clear ssl {cache [**all**] | errors | mib | objects}

Syntax Description

all	Clears all sessions and statistics in SSL session cache.
cache	Clears expired sessions in SSL session cache.
errors	Clears ssl errors.
mib	Clears SSL MIB statistics.
objects	Clears SSL object statistics.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	—

Command History

Release	Modification
8.4(1)	This command was introduced.

Usage Guidelines

DTLS cache is never cleared because it would impact AnyConnect functionality.

Examples

The following example shows clearing ssl cache and clearing all sessions and statistics in SSL session cache.

```
hostname# clear ssl cache
SSL session cache cleared: 2
No SSL VPNLB session cache
No SSLDEV session cache
DLTS caches are not cleared

hostname# clear ssl cache all
Clearing all sessions and statistics
SSL session cache cleared: 5
No SSL VPNLB session cache
No SSLDEV session cache
DLTS caches are not cleared
```

clear startup-config errors

To clear configuration error messages from memory, use the **clear startup-config errors** command in privileged EXEC mode.

clear startup-config errors

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To view configuration errors generated when the ASA loaded the startup configuration, use the **show startup-config errors** command.

Examples

The following example clears all configuration errors from memory:

```
hostname# clear startup-config errors
```

Related Commands

Command	Description
show startup-config errors	Shows configuration errors generated when the ASA loaded the startup configuration.

clear sunrpc-server active

To clear the pinholes opened by Sun RPC application inspection, use the **clear sunrpc-server active** command in privileged EXEC mode.

clear sunrpc-server active

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Use the **clear sunrpc-server active** command to clear the pinholes opened by Sun RPC application inspection that allow service traffic, such as NFS or NIS, to pass through the ASA.

Examples

The following example shows how to clear the SunRPC services table:

```
hostname# clear sunrpc-server
```

Related Commands

Command	Description
clear configure sunrpc-server	Clears the Sun remote processor call services from the ASA.
inspect sunrpc	Enables or disables Sun RPC application inspection and configures the port used.
show running-config sunrpc-server	Displays information about the SunRPC services configuration.
show sunrpc-server active	Displays information about active Sun RPC services.

clear threat-detection rate

To clear statistics when you enable basic threat detection using the **threat-detection basic-threat** command, use the **clear threat detection rate** command in privileged EXEC mode.

clear threat-detection rate

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Examples

The following example clears the rate statistics:

```
hostname# clear threat-detection rate
```

Related Commands

Command	Description
show running-config all threat-detection	Shows the threat detection configuration, including the default rate settings if you did not configure them individually.
show threat-detection rate	Shows basic threat detection statistics.
threat-detection basic-threat	Enables basic threat detection.
threat-detection rate	Sets the threat detection rate limits per event type.
threat-detection scanning-threat	Enables scanning threat detection.

clear threat-detection scanning-threat

To clear the attackers and targets after you enable scanning threat detection with the **threat-detection scanning-threat** command, use the **clear threat-detection scanning-threat** command in privileged EXEC mode.

clear threat-detection scanning-threat [attacker [*ip_address* [*mask*]] |
target [*ip_address* [*mask*]]

Syntax Description

attacker	(Optional) Clears only attackers.
ip_address	(Optional) Clears a specific IP address.
mask	(Optional) Sets the subnet mask.
target	(Optional) Clears only targets.

Defaults

If you do not specify an IP address, all hosts are released.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

To view current attackers and targets, use the **show threat-detection scanning-threat** command.

Examples

The following example shows targets and attackers with the **show threat-detection scanning-threat** command, and then clears all targets:

```
hostname# show threat-detection scanning-threat
Latest Target Host & Subnet List:
    192.168.1.0
    192.168.1.249
   Latest Attacker Host & Subnet List:
    192.168.10.234
    192.168.10.0
    192.168.10.2
    192.168.10.3
    192.168.10.4
    192.168.10.5
    192.168.10.6
```

```
    192.168.10.7
    192.168.10.8
    192.168.10.9
hostname# clear threat-detection scanning-threat target
```

Related Commands

Command	Description
show threat-detection shun	Shows currently shunned hosts.
show threat-detection statistics host	Shows the host statistics.
show threat-detection statistics protocol	Shows the protocol statistics.
show threat-detection statistics top	Shows the top 10 statistics.
threat-detection scanning-threat	Enables scanning threat detection.

clear threat-detection shun

To release the currently shunned hosts after you enable scanning threat detection with the **threat-detection scanning-threat** command and automatically shunning attacking hosts, use the **clear threat-detection shun** command in privileged EXEC mode.

clear threat-detection shun [*ip_address* [*mask*]]

Syntax Description

ip_address	(Optional) Releases a specific IP address from being shunned.
mask	(Optional) Sets the subnet mask for the shunned host IP address.

Defaults

If you do not specify an IP address, all hosts are released.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

To view currently shunned hosts, use the **show threat-detection shun** command.

Examples

The following example views currently shunned hosts with the **show threat-detection shun** command, and then releases host 10.1.1.6 from being shunned:

```
hostname# show threat-detection shun
Shunned Host List:
10.1.1.6
198.1.6.7
hostname# clear threat-detection shun 10.1.1.6 255.255.255.255
```

Related Commands

Command	Description
show threat-detection shun	Shows currently shunned hosts.
show threat-detection statistics host	Shows the host statistics.
show threat-detection statistics protocol	Shows the protocol statistics.

Command	Description
show threat-detection statistics top	Shows the top 10 statistics.
threat-detection scanning-threat	Enables scanning threat detection.

clear threat-detection statistics

To clear the statistics after you enable TCP Intercept statistics with the **threat-detection statistics tcp-intercept** command, use the **clear threat-detection scanning-threat** command in privileged EXEC mode.

clear threat-detection statistics [tcp-intercept]

Syntax Description

tcp-intercept	(Optional) Clears TCP Intercept statistics.

Defaults

Clears TCP Intercept statistics.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	—	—

Command History

Release	Modification
8.0(4)	This command was introduced.

Usage Guidelines

To view TCP Intercept statistics, enter the **show threat-detection statistics top** command.

Examples

The following example shows TCP Intercept statistics with the **show threat-detection statistics top tcp-intercept** command, and then clears all statistics:

```
hostname# show threat-detection statistics top tcp-intercept

Top 10 Protected Servers under Attack (sorted by average rate)
Monitoring Window Size: 30 mins    Sampling Interval: 30 secs
<Rank> <Server IP:Port> <Interface> <Ave Rate> <Cur Rate> <Total> <Source IP (Last Attack
Time)>
------------------------------------------------------------------------------
1    192.168.1.2:5000 inside 1249 9503 2249245 <various> Last: 10.0.0.3 (0 secs ago)
2    192.168.1.3:5000 inside 10 10 6080 10.0.0.200 (0 secs ago)
3    192.168.1.4:5000 inside 2 6 560 10.0.0.200 (59 secs ago)
4    192.168.1.5:5000 inside 1 5 560 10.0.0.200 (59 secs ago)
5    192.168.1.6:5000 inside 1 4 560 10.0.0.200 (59 secs ago)
6    192.168.1.7:5000 inside 0 3 560 10.0.0.200 (59 secs ago)
7    192.168.1.8:5000 inside 0 2 560 10.0.0.200 (59 secs ago)
8    192.168.1.9:5000 inside 0 1 560 10.0.0.200 (59 secs ago)
9    192.168.1.10:5000 inside 0 0 550 10.0.0.200 (2 mins ago)
10   192.168.1.11:5000 inside 0 0 550 10.0.0.200 (5 mins ago)
```

```
hostname# clear threat-detection statistics
```

Related Commands

Command	Description
show threat-detection statistics top	Shows the top 10 statistics.
threat-detection statistics	Enables threat detection statistics.

clear traffic

To reset the counters for transmit and receive activity, use the **clear traffic** command in privileged EXEC mode.

clear traffic

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **clear traffic** command resets the counters for transmit and receive activity that is displayed with the **show traffic** command. The counters indicate the number of packets and bytes moving through each interface since the last clear traffic command was entered or since the ASA came online. And the number of seconds indicate the duration the ASA has been online since the last reboot.

Examples

The following example shows the **clear traffic** command:

```
hostname# clear traffic
```

Related Commands

Command	Description
show traffic	Displays the counters for transmit and receive activity.

clear uauth

To delete all the cached authentication and authorization information for a user or for all users, use the **clear uauth** command in privileged EXEC mode.

clear uauth [*username*]

Syntax Description

username	(Optional) Specifies the user authentication information to remove by username.

Defaults

Omitting the *username* argument deletes the authentication and authorization information for all users.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **clear uauth** command deletes the AAA authorization and authentication caches for one user or for all users, which forces the user or users to reauthenticate the next time that they create a connection.

This command is used with the **timeout** command.

Each user host IP address has an authorization cache attached to it. If the user attempts to access a service that has been cached from the correct host, the ASA considers it preauthorized and immediately proxies the connection. Once you are authorized to access a website, for example, the authorization server is not contacted for each image as it is loaded (assuming the images come from the same IP address). This process significantly increases performance and reduces the load on the authorization server.

The cache allows up to 16 address and service pairs for each user host.

Note When you enable Xauth, an entry is added to the uauth table (as shown by the **show uauth** command) for the IP address that is assigned to the client. However, when using Xauth with the Easy VPN Remote feature in Network Extension Mode, the IPsec tunnel is created from network to network, so that the users behind the firewall cannot be associated with a single IP address. For this reason, a uauth entry cannot be created upon completion of Xauth. If AAA authorization or accounting services are required, you can enable the AAA authentication proxy to authenticate users behind the firewall. For more information on AAA authentication proxies, see the AAA commands.

Use the **timeout uauth** command to specify how long the cache should be kept after the user connections become idle. Use the **clear uauth** command to delete all the authorization caches for all the users, which will cause them to have to reauthenticate the next time that they create a connection.

Examples

The following example shows how to cause the user to reauthenticate:

```
hostname(config)# clear uauth user
```

Related Commands

Command	Description
aaa authentication	Enables, disables, or views LOCAL, TACACS+ or RADIUS user authentication (on a server designated by the **aaa-server** command).
aaa authorization	Enablse, disables, or views TACACS+ or RADIUS user authorization (on a server designated by the **aaa-server** command).
show uauth	Displays current user authentication and authorization information.
timeout	Sets the maximum idle time duration.

clear uc-ime

To clear the counters used to display statistics about the Cisco Intercompany Media Engine proxy, use the **clear uc-ime** command in privileged EXEC mode.

clear uc-ime [[**mapping-service-sessions** | **signaling-sessions** | **fallback-notification**] **statistics**]

Syntax Description

fallback-notification	(Optional) Clears the counters for fallback notification statistics.
mapping-service-sessions	(Optional) Clears the counters for mapping-service-session statistics.
signaling-sessions	(Optional) Clears the counters for signaling-session statistics.
statistics	(Optional) The keyword to configure which counters to clear for the Cisco Intercompany Media Engine proxy.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
8.3(1)	This command was introduced.

Examples

The following example clears the counters which are used to display signaling-sessions statistics:

```
hostname# clear configure signaling-sessions statistics
```

Related Commands

Command	Description
clear configure uc-ime	Clears the running configuration for the Cisco Intercompany Media Engine proxy on the ASA.
show running-config uc-ime	Shows the running configuration of the Cisco Intercompany Media Engine proxy.
show uc-ime	Displays statistical or detailed information about fallback notifications, mapping-service sessions, and signaling sessions.
uc-imc	Creates the Cisco Intercompany Media Engine proxy instance on the ASA.

clear url-block block statistics

To clear the block buffer usage counters, use the **clear url-block block statistics** command in privileged EXEC mode.

clear url-block block statistics

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introducded.

Usage Guidelines

The **clear url-block block statistics** command clears the block buffer usage counters, except for the Current number of packets held (global) counter.

Examples

The following example clears the URL block statistics and displays the status of the counters after they have been cleared:

```
hostname# clear url-block block statistics
hostname# show url-block block statistics

URL Pending Packet Buffer Stats with max block  0
-----------------------------------------------------
Cumulative number of packets held: | 0
Maximum number of packets held (per URL): | 0
Current number of packets held (global): | 38
Packets dropped due to
| exceeding url-block buffer limit: | 0
| HTTP server retransmission: | 0
Number of packets released back to client: | 0
```

Related Commands

Commands	Description
filter url	Directs traffic to a URL filtering server.
show url-block	Displays information about the URL cache, which is used for buffering URLs while waiting for responses from an N2H2 or Websense filtering server.
url-block	Manages the URL buffers used for web server responses.
url-cache	Enables URL caching while pending responses from an N2H2 or Websense server and sets the size of the cache.
url-server	Identifies an N2H2 or Websense server for use with the **filter** command.

clear url-cache statistics

To remove **url-cache** command statements from the configuration, use the **clear url-cache** command in privileged EXEC mode.

clear url-cache statistics

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **clear url-cache** command removes URL cache statistics from the configuration.

Using the URL cache does not update the Websense accounting logs for Websense protocol Version 1. If you are using Websense protocol Version 1, let Websense run to accumulate logs so you can view the Websense accounting information. After you get a usage profile that meets your security needs, enter the **url-cache** command to increase throughput. Accounting logs are updated for Websense protocol Version 4 and for N2H2 URL filtering while using the **url-cache** command.

Examples

The following example clears the URL cache statistics:

```
hostname# clear url-cache statistics
```

Related Commands

Commands	Description
filter url	Directs traffic to a URL filtering server.
show url-cache statistics	Displays information about the URL cache, which is used for buffering URLs while waiting for responses from an N2H2 or Websense filtering server.
url-block	Manages the URL buffers used for web server responses while waiting for a filtering decision from the filtering server.

url-cache	Enables URL caching while pending responses from an N2H2 or Websense server and sets the size of the cache.
url-server	Identifies an N2H2 or Websense server for use with the **filter** command.

clear url-server

To clear URL filtering server statistics, use the **clear url-server** command in privileged EXEC mode.

clear url-server statistics

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **clear url-server** command removes URL filtering server statistics from the configuration.

Examples

The following example clears the URL server statistics:

```
hostname# clear url-server statistics
```

Related Commands

Commands	Description
filter url	Directs traffic to a URL filtering server.
show url-server	Displays information about the URL cache, which is used for buffering URLs while waiting for responses from an N2H2 or Websense filtering server.
url-block	Manages the URL buffers used for web server responses while waiting for a filtering decision from the filtering server.
url-cache	Enables URL caching while pending responses from an N2H2 or Websense server and sets the size of the cache.
url-server	Identifies an N2H2 or Websense server for use with the **filter** command.

clear user-identity active-user-database

To set the status of specified users to logged out for the Identity Firewall, use the **clear user-identity active-user-database** command in privileged EXEC mode.

clear user-identity active-user-database [**user** [*domain_nickname*\]*use_rname*] | **user-group** [*domain_nickname*\\]*user_group_name*]

Syntax Description

*domain_nickname**user_group_name*	Specifies a user group for which to clear statistics. The *group_name* can contain any character including [a-z], [A-Z], [0-9], [!@#$%^&()-_{}.]. If *domain_NetBIOS_name**group_name* contains a space, you must enclose the domain name and user name in quotation marks.
*domain_nickname**use_rname*	Specifies a user for which to clear statistics. The *user_name* can contain any character including [a-z], [A-Z], [0-9], [!@#$%^&()-_{}.]. If *domain_NetBIOS_name**user_name* contains a space, you must enclose the domain name and user name in quotation marks.
user	Specifies to clear statistics for users.
user-group	Specifies to clear statistics for user groups.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
8.4(2)	This command was introduced.

Usage Guidelines

This command sets the status of the specified user, all users belong to the specified user group, or all users to logged out.

When you specify the **user-group** keyword, the status of all users belong to the specified user group are set to logged out. When you do not specify the *domain_nickname* argument with the **user-group** keyword, users in the groups with *user_group_name* in default domain are given the logged out status.

When you specify the **user** keyword, the status of the specified user is set to logged out. When you do not specify the *domain_nickname* argument with the **user** keyword, the user with *user_name* in default domain receives a logged out status.

When you do not specify either the **user** or **user-group** keywords, all users have their status set to logged out.

Examples

The following example sets the status of all users in user group users1 in the SAMPLE domain to logged out:

```
hostname# clear user-identity active-user-database user-group SAMPLE\users1
```

Related Commands

Command	Description
clear configure user-identity	Clears the configuration for the Identity Firewall feature.
show user-identity user active	Displays the active users for the Identify Firewall.

clear user-identity ad-agent statistics

To clear the AD Agent statistics for the Identity Firewall, use the **clear user-identity ad-agent statistics** command in privileged EXEC mode.

clear user-identity ad-agent statistics

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
8.4(2)	This command was introduced.

Usage Guidelines

The ASA maintains the following information about the primary and secondary AD Agents:

- Status of the AD Agents
- Status of the domains
- Statistics for the AD Agents

Use the **clear user-identity ad-agent statistics** command to clear the statistics data of AD Agents.

Examples

The following example clears the AD Agent statistics for the Identity Firewall:

```
hostname# clear user-identity ad-agent statistics
hostname# show user-identity ad-agent statistics

    Primary AD Agent                Total  Last Activity
    -------------------------  ----------  ------------------------
    Input packets:                      0  N/A
    Output packets:                     0  N/A
    Send updates:                       0  N/A
    Recv updates:                       0  N/A
    Keepalive failed:                   0  N/A
    Send update failed:                 0  N/A
    Query failed:                       0  N/A

    Secondary AD Agent              Total  Last Activity
```

```
-------------------------  ----------  ------------------------
Input packets:                      0  N/A
Output packets:                     0  N/A
Send updates:                       0  N/A
Recv updates:                       0  N/A
Keepalive failed:                   0  N/A
Send update failed:                 0  N/A
Query failed:                       0  N/A
```

Related Commands

Command	Description
clear configure user-identity	Clears the configuration for the Identity Firewall feature.
show user-identity ad-agent [**statistics**]	Displays statistical information about the AD Agent for the Identity Firewall.

clear user-identity statistics

To clear the counters used to display statistics about the Identity Firewall, use the **clear user-identity statistics** command in privileged EXEC mode.

clear user-identity statistics [**user** [*domain_nickname*\\]*use_rname*] | **user-group** [*domain_nickname*\\]*user_group_name*]

Syntax Description

*domain_nickname**user_group_name*	Specifies a user group for which to clear statistics. The *group_name* can contain any character including [a-z], [A-Z], [0-9], [!@#$%^&()-_{}.]. If *domain_NetBIOS_name**group_name* contains a space, you must enclose the domain name and user name in quotation marks.
*domain_nickname**use_rname*	Specifies a user for which to clear statistics. The *user_name* can contain any character including [a-z], [A-Z], [0-9], [!@#$%^&()-_{}.]. If *domain_NetBIOS_name**user_name* contains a space, you must enclose the domain name and user name in quotation marks.
user	Specifies to clear statistics for users.
user-group	Specifies to clear statistics for user groups.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
8.4(2)	This command was introduced.

Usage Guidelines

When *domain_nickname* is not specified before *user_group_name*, the ASA removes the Identity Firewall statistics for the group with *user_group_name* in the default domain.

When *domain_nickname* is not specified before *user_name*, the ASA removes the Identity Firewall statistics for the user with *user_name* in the default domain.

Examples

The following example clears the counters which are used to display statistics for a user group:

```
hostname# clear user-identity statistics user-group SAMPLE\users1
```

Related Commands

Command	Description
clear configure user-identity	Clears the configuration for the Identity Firewall feature.
show user-identity statistics	Displays statistics for a user or user group for the Identify Firewall.

clear user-identity user-not-found

To clear the ASA local user-not-found database for the Identity Firewall, use the **clear user-identity user-not-found** command in privileged EXEC mode.

clear user-identity user-not-found

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
8.4(2)	This command was introduced.

Usage Guidelines

The ASA maintains a local user-not-found database of the IP addresses not found in Microsoft Active Directory. The ASA keeps only the last 1024 packets (contiguous packets from the same source IP address are treated as one packet) of the user-not-found list and not the entire list in the database.

User the **clear user-identity user-not-found** command to clear the local database on the ASA.

Tip Use the **show user-identity user-not-found** command to display the IP addresses of the users who are not found in Microsoft Active Directory.

Examples

The following example clears the local user-not-found database for the Identity Firewall:

```
hostname# show user-identity user-not-found
172.13.1.2
171.1.45.5
169.1.1.2
172.13.12
hostname# clear user-identity user-not-found
```

Related Commands

Command	Description
clear configure user-identity	Clears the configuration for the Identity Firewall feature.
show user-identity user-not-found	Displays the IP addresses of the Active Directory users not found in the ASA user-not-found database.

clear user-identity user no-policy-activated

To clear the local records on the ASA of users who are not activated for the Identity Firewall, use the **clear user-identity user no-policy-activated** command in privileged EXEC mode.

clear user-identity user no-policy-activated

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
8.4(2)	This command was introduced.

Usage Guidelines

Use the **clear user-identity user no-policy-activated** to clear the local records of users not activated by any security policy, meaning the user is not part of an activated user group or not referenced in an access list or service policy configuration.

The **clear user-identity user no-policy-activated** command also clears the IP addresses of users who are active but not activated.

When you create a user group for the Identity Firewall, it must be activated, meaning the group is an import user group (defined as a user group in an access list or service policy configuration) or a local user group (defined in an object-group user).

Examples

The following example clears the local records on the ASA for users who are not activated:

```
hostname# clear user-identity user no-policy-activated
```

Related Commands

Command	Description
clear configure user-identity	Clears the configuration for the Identity Firewall feature.
show user-identity group	Displays the list of activated user groups for the Identity Firewall.

clear vpn-sessiondb statistics

To clear information about VPN sessions, including all statistics or specific sessions or protocols, use the **clear vpn-sessiondb statistics** command in privileged EXEC mode.

clear vpn-sessiondb {**all** | **anyconnect** | **email-proxy** | **global** | **index** *index_number* | **ipaddress** *IPaddr* | **l2l** | **name** *username* | **protocol** *protocol* | **ra-ikev1-ipsec** | **tunnel-group** *name* | **vpn-lb** | **webvpn**}

Syntax Descriptions

all	Clears statistics for all sessions.
anyconnect	Clears statistics for AnyConnect VPN client sessions.
email-proxy	Clears statistics for e-mail proxy sessions.
global	Clears statistics for global session data.
index *indexnumber*	Clears statistics of a single session by index number. The output of the **show vpn-sessiondb detail** command displays index numbers for each session.
ipaddress *IPaddr*	Clears statistics for sessions of the IP address that you specify.
l2l	Clears stastistics for VPN LAN-to-LAN sessions.
protocol *protocol*	Clears statistics for the following protocols: • ikev1—Sessions using the IKEv1 protocol. • ikev2—Sessions using theIKEv2 protocol. • ipsec—IPsec sessions using either IKEv1 or IKEv2. • ipseclan2lan—IPsec LAN-to-LAN sessions. • ipseclan2lanovernatt—IPsec LAN-to-LAN over NAT-T sessions. • ipsecovernatt—IPsec over NAT-T sessions. • ipsecovertcp—IPsec over TCP sessions. • ipsecoverudp—IPsec over UDP sessions. • l2tpOverIpSec—L2TP over IPsec sessions. • l2tpOverIpsecOverNatT—L2TP over IPsec over NAT-T sessions. • ospfv3—OSPFv3 over IPsec sessions. • webvpn—Clientless SSL VPN sessions. • imap4s—IMAP4 sessions. • pop3s—POP3 sessions. • smtps—SMTP sessions. • anyconnectParent—AnyConnect client sessions, regardless of the protocol used for the session (terminates AnyConnect IPsec IKEv2 and SSL sessions). • ssltunnel—SSL VPN sessions, including AnyConnect sessions using SSL and clientless SSL VPN sessions. • dtlstunnel—AnyConnect client sessions with DTLS enabled.
ra-ikev1-ipsec	Clears statistics for IPsec IKEv1 sessions.

tunnel-group *groupname*	Clears statistics for sessions for the tunnel group (connection profile) that you specify.
vpn-lb	Clears statistics for VPN load balancing management sessions.
webvpn	Clears statistics for clientless SSL VPN sessions.

Defaults

There is no default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•		—

Command History

Release	Modification
8.4(1)	This command was introduced.

clear wccp

To reset WCCP information, use the **clear wccp** command in privileged EXEC mode.

clear wccp [**web-cache** | *service_number*]

Syntax Description

web-cache	Specifies the web-cache service.
service-number	A dynamic service identifier, which means the service definition is dictated by the cache. The dynamic service number can be from 0 to 255. There is a maximum allowable number of 256 that includes the web-cache service specified with the **web-cache** keyword.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to reset the WCCP information for the web-cache service:

```
hostname# clear wccp web-cache
```

Related Commands

Command	Description
show wccp	Displays the WCCP configuration.
wccp redirect	Enables support of WCCP redirection.

clear webvpn sso-server statistics

To reset the statistics from the WebVPN Single Sign-On (SSO) server, use the **clear webvpn sso-server statistics** command in privileged EXEC mode.

clear webvpn sso-server statistics *servername*

Syntax Description

servername	Specifies the name of the SSO server to be reset.

Defaults

No default behavior or values.

Command Modes

The following table shows the mode in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•		—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

This command does not reset the "pending requests" statistic.

Examples

The following example displays crypto accelerator statistics:

```
hostname # clear webvpn sso-server statistics
hostname #
```

Related Commands

Command	Description
clear crypto accelerator statistics	Clears the global and accelerator-specific statistics in the crypto accelerator MIB.
clear crypto protocol statistics	Clears the protocol-specific statistics in the crypto accelerator MIB.
show crypto accelerator statistics	Displays the global and accelerator-specific statistics in the crypto accelerator MIB.
show crypto protocol statistics	Displays the protocol-specific statistics from the crypto accelerator MIB.

clear xlate

To clear current dynamic translation and connection information, use the **clear xlate** command in privileged EXEC mode.

clear xlate [**global** *ip1*[**-***ip2*] [**netmask** *mask*]] [**local** *ip1*[**-***ip2*] [**netmask** *mask*]] [**gport** *port1*[**-***port2*]] [**lport** *port1*[**-***port2*]] [**interface** *if_name*] [**state** *state*]

Syntax Description

global *ip1*[**-***ip2*]	(Optional) Clears the active translations by global IP address or range of addresses.
gport *port1*[*-port2*]	(Optional) Clears the active translations by the global port or range of ports.
interface *if_name*	(Optional) Displays the active translations by interface.
local *ip1*[**-***ip2*]	(Optional) Clears the active translations by local IP address or range of addresses.
lport *port1*[*-port2*]	(Optional) Clears the active translations by local port or range of ports.
netmask *mask*	(Optional) Specifies the network mask to qualify the global or local IP addresses.
state *state*	(Optional) Clears the active translations by state. You can enter one or more of the following states: • **static**—Specifies **static** translations. • **portmap**—Specifies PAT global translations. • **norandomseq**—Specifies a **nat** or **static** translation with the **norondomseq** setting. • **identity**—Specifies **nat 0** identity address translations. When specifying more than one state, separate the states with a space.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **clear xlate** command clears the contents of the translation slots ("xlate" refers to the translation slot). Translation slots can persist after key changes have been made. Always use the **clear xlate** command after adding, changing, or removing the **global** or **nat** commands in your configuration.

An xlate describes a NAT or PAT session. These sessions can be viewed with the **show xlate** command with the **detail** option. There are two types of xlates: static and dynamic.

A static xlate is a persistent xlate that is created using the **static** command. The **clear xlate** command does not clear for a host in a static entry. Static xlates can only be removed by removing the **static** command from the configuration; the **clear xlate** command does not remove the static translation rule. If you remove a static command from the configuration, preexisting connections that use the static rule can still forward traffic. Use the **clear local-host** or **clear conn** command to deactivate these connections.

A dynamic xlate is an xlate that is created on demand with traffic processing (through the **nat** or **global** command). The **clear xlate** command removes dynamic xlates and their associated connections. You can also use the **clear local-host** or **clear conn** command to clear the xlate and associated connections. If you remove a **nat** or a **global** command from the configuration, the dynamic xlate and associated connections may remain active. Use the **clear xlate** command to remove these connections.

Examples

The following example shows how to clear the current translation and connection slot information:

```
hostname# clear xlate global
```

Related Commands

Command	Description
clear local-host	Clears local host network information.
clear uauth	Clears cached user authentication and authorization information.
show conn	Displays all active connections.
show local-host	Displays the local host network information.
show xlate	Displays the current translation information.

CHAPTER 10

client-access-rule through crl configure Commands

client-access-rule

To configure rules that limit the remote access client types and versions that can connect via IPsec through the ASA, use the **client-access-rule** command in group-policy configuration mode. To delete a rule, use the **no** form of this command.

client-access-rule *priority* {**permit** | **deny**} **type** *type* **version** *version* | **none**

no client-access-rule *priority* [{**permit** | **deny**} **type** *type* **version** *version*]

Syntax Description

deny	Denies connections for devices of a particular type and/or version.
none	Allows no client access rules. Sets **client-access-rule** to a null value, thereby allowing no restriction. Prevents inheriting a value from a default or specified group policy.
permit	Permits connections for devices of a particular type and/or version.
priority	Determines the priority of the rule. The rule with the lowest integer has the highest priority. Therefore, the rule with the lowest integer that matches a client type and/or version is the rule that applies. If a lower priority rule contradicts, the ASA ignores it.
type *type*	Identifies device types via free-form strings, for example VPN 3002. A string must match exactly its appearance in the **show vpn-sessiondb remote** command output, except that you can use the * character as a wildcard.
version *version*	Identifies the device version via free-form strings, for example 7.0. A string must match exactly its appearance in the **show vpn-sessiondb remote** command output, except that you can use the * character as a wildcard.

Defaults

By default, there are no access rules.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Group-policy configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To delete all rules, use the **no client-access-rule command** with only the *priority* argument. This deletes all configured rules, including a null rule created by issuing the **client-access-rule none** command.

When there are no client access rules, users inherit any rules that exist in the default group policy. To prevent users from inheriting client access rules, use the **client-access-rule none** command. The result of doing so is that all client types and versions can connect.

Construct rules according to these caveats:

- If you do not define any rules, the ASA permits all connection types.
- When a client matches none of the rules, the ASA denies the connection. This means that if you define a deny rule, you must also define at least one permit rule, or the ASA denies all connections.
- For both software and hardware clients, type and version must match exactly their appearance in the **show vpn-sessiondb remote** command output.
- The * character is a wildcard, which you can use multiple times in each rule. For example, **client-access-rule 3 deny type * version 3.*** creates a priority 3 client access rule that denies all client types running release versions 3.x software.
- You can construct a maximum of 25 rules per group policy.
- There is a limit of 255 characters for an entire set of rules.
- You can use n/a for clients that do not send client type and/or version.

Examples

The following example shows how to create client access rules for the group policy named FirstGroup. These rules permit VPN Clients running software version 4.1, while denying all VPN 3002 hardware clients:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# client-access-rule 1 d t VPN3002 v *
hostname(config-group-policy)# client-access-rule 2 p * v 4.1
```

client-bypass-proxy

To configure how the ASA manages IPv4 traffic when it is expecting only IPv6 traffic or how it manages IPv6 traffic when it is expecting only IPv4 traffic, use the **client-bypass-proxy** command in group-policy configuration mode. To clear the client bypass protocol setting, use the **no** form of this command.

client-bypass-protocol {**enable** | **disable**}

no client-bypass-protocol {**enable** | **disable**}

Syntax Description

enable	If Client Bypass Protocol is enabled, the the IP traffic for which the ASA did not assign an IP address type is sent from the client in the clear.
disable	If Client Bypass Protocol is disabled, the IPv6 traffic for wich the ASA did not assing an IP address type is is dropped.

Defaults

Client Bypass Protocol is disabled by default in the DfltGrpPolicy.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy configuration	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

The Client Protocol Bypass feature allows you to configure how the ASA manages IPv4 traffic when it is expecting only IPv6 traffic or how it manages IPv6 traffic when it is expecting only IPv4 traffic.

When the AnyConnect client makes a VPN connection to the ASA, the ASA could assign it an IPv4, IPv6, or both an IPv4 and IPv6 address. If the ASA assigns the AnyConnect connection only an IPv4 address or only an IPv6 address, you can now configure the Client Bypass Protocol to drop network traffic for which the ASA did not assign an IP address, or allow that traffic to bypass the ASA and be sent from the client unencrypted or “in the clear.”

For example, assume that the ASA assigns only an IPv4 address to an AnyConnect connection and the endpoint is dual stacked. When the endpoint attempts to reach an IPv6 address, if Client Bypass Protocol is disabled, the IPv6 traffic is dropped; however, if Client Bypass Protocol is enabled, the IPv6 traffic is sent from the client in the clear.

Examples

The following example enables client bypass protocol:

```
hostname(config-group-policy)# client-bypass-protocol enable
hostname(config-group-policy)#
```

The following example disables client bypass protocol:

```
hostname(config-group-policy)# client-bypass-protocol disable
hostname(config-group-policy)#
```

The following example clears the client bypass protocol setting:

```
hostname(config-group-policy)# no client-bypass-protocol enable
hostname(config-group-policy)#
```

client (ctl-provider)

To specify clients allowed to connect to the Certificate Trust List provider, or to specify a username and password for client authentication, use the **client** command in ctl provider configuration mode. To remove the configuration, use the **no** form of this command.

client [[**interface** *if_name*] *ipv4_addr*] | [**username** *user_name* **password** *password* [**encrypted**]]

no client [[**interface** *if_name*] *ipv4_addr*] | [**username** *user_name* **password** *password* [**encrypted**]]

Syntax Description

encrypted	Specifies encryption for the password.
interface *if_name*	Specifies the interface allowed to connect.
ipv4_addr	Specifies the IP address of the client.
password *password*	Specifies the password for client authentication.
username *user_name*	Specifies the username for client authentication.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ctl provider configuration	•	•	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Use the **client** command in ctl provider configuration mode to specify the clients allowed to connect to the CTL provider, and to set the username and password for client authentication. More than one command may be issued to define multiple clients. The username and password must match the CCM Administrator's username and password for the CallManager cluster.

Examples

The following example shows how to create a CTL provider instance:

```
hostname(config)# ctl-provider my_ctl
hostname(config-ctl-provider)# client interface inside 172.23.45.1
hostname(config-ctl-provider)# client username CCMAdministrator password XXXXXX encrypted
hostname(config-ctl-provider)# export certificate ccm_proxy
hostname(config-ctl-provider)# ctl install
```

Related Commands

Commands	Description
ctl	Parses the CTL file from the CTL client and installs trustpoints.
ctl-provider	Configures a CTL provider instance in ctl provider configuration mode.
export	Specifies the certificate to be exported to the client
service	Specifies the port to which the CTL provider listens.
tls-proxy	Defines a TLS proxy instance and sets the maximum sessions.

client (tls-proxy)

To configure trustpoints, keypairs, and cipher suites, use the **client** command in tls proxy configuration mode. To remove the configuration, use the **no** form of this command.

client [**cipher-suite** *cipher_suite*] | [**ldc** [**issuer** *ca_tp_name* | **key-pair** *key_label*]]

no client [**cipher-suite** *cipher_suite*] | [**ldc** [**issuer** *ca_tp_name* | **key-pair** *key_label*]

Syntax Description

cipher-suite *cipher_suite*	Specifies the cipher suite. Options include des-sha1, 3des-sha1, aes128-sha1, aes256-sha1, or null-sha1.
issuer *ca_tp_name*	Specifies the local CA trustpoint to issue client dynamic certificates.
keypair *key_label*	Specifies the RSA keypair to be used by client dynamic certificates.
ldc	Specifies the local dynamic certificate issuer or keypair.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tls proxy configuration	•	•	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Use the **client** command in tls proxy configuration mode to control the TLS handshake parameters for the ASA as the TLS client role in TLS proxy. This includes cipher suite configuration, or to set the local dynamic certificate issuer or keypair. The local CA that issues client dynamic certificates is defined by the **crypto ca trustpoint** command, and the trustpoint must have the **proxy-ldc-issuer** command configured, or the default local CA server (LOCAL-CA-SERVER).

The keypair value must have been generated with the **crypto key generate** command.

For client proxy (the proxy acts as a TLS client to the server), the user-defined cipher suite replaces the default cipher suite, or the one defined by the **ssl encryption** command. You can use this command to achieve different ciphers between the two TLS sessions. You should use AES ciphers with the CallManager server.

Examples

The following example shows how to create a TLS proxy instance:

```
hostname(config)# tls-proxy my_proxy
```

```
hostname(config-tlsp)# server trust-point ccm_proxy
hostname(config-tlsp)# client ldc issuer ldc_server
hostname(config-tlsp)# client ldc keypair phone_common
```

Related Commands

Commands	Description
ctl-provider	Defines a CTL provider instance and enters ctl provider configuration mode.
server trust-point	Specifies the proxy trustpoint certificate to be presented during the TLS handshake.
show tls-proxy	Shows the TLS proxies.
tls-proxy	Defines a TLS proxy instance and sets the maximum number of sessions.

client-firewall

To set personal firewall policies that the ASA pushes to the VPN client during IKE tunnel negotiation, use the **client-firewall** command in group-policy configuration mode. To delete a firewall policy, use the **no** form of this command.

client-firewall none

no client-firewall {**opt** | **req**} **custom vendor-id** *num* **product-id** *num* **policy** {**AYT** | **CPP acl-in** *acl* **acl-out** *acl*} [**description** *string*]

client-firewall {**opt** | **req**} **zonelabs-integrity**

Note When the firewall type is **zonelabs-integrity**, do not include arguments. The Zone Labs Integrity Server determines the policies.

client-firewall {**opt** | **req**} **zonelabs-zonealarm policy** {**AYT** | **CPP acl-in** *acl* **acl-out** *acl*}

client-firewall {**opt** | **req**} **zonelabs-zonealarmorpro policy** {**AYT** | **CPP acl-in** *acl* **acl-out** *acl*}

client-firewall {**opt** | **req**} **zonelabs-zonealarmpro policy** {**AYT** | **CPP acl-in** *acl* **acl-out** *acl*}

client-firewall {**opt** | **req**} **cisco-integrated acl-in** *acl* **acl-out** *acl*}

client-firewall {**opt** | **req**} **sygate-personal**

client-firewall {**opt** | **req**} **sygate-personal-pro**

client-firewall {**opt** | **req**} **sygate-personal-agent**

client-firewall {**opt** | **req**} **networkice-blackice**

client-firewall {**opt** | **req**} **cisco-security-agent**

Syntax Description

acl-in *acl*	Provides the policy the client uses for inbound traffic.
acl-out *acl*	Provides the policy the client uses for outbound traffic.
AYT	Specifies that the client PC firewall application controls the firewall policy. The ASA checks to make sure the firewall is running. It asks, “Are You There?” If there is no response, the ASA tears down the tunnel.
cisco-integrated	Specifies the Cisco Integrated firewall type.
cisco-security-agent	Specifies the Cisco Intrusion Prevention Security Agent firewall type.
CPP	Specifies Policy Pushed as source of the VPN Client firewall policy.
custom	Specifies the Custom firewall type.
description *string*	Describes the firewall.
networkice-blackice	Specifies the Network ICE Black ICE firewall type.

none	Indicates that there is no client firewall policy. Sets a firewall policy with a null value, thereby disallowing one. Prevents inheriting a firewall policy from a default or specified group policy.
opt	Indicates an optional firewall type.
product-id	Identifies the firewall product.
req	Indicates a required firewall type.
sygate-personal	Specifies the Sygate Personal firewall type.
sygate-personal-pro	Specifies the Sygate Personal Pro firewall type.
sygate-security-agent	Specifies the Sygate Security Agent firewall type.
vendor-id	Identifies the firewall vendor.
zonelabs-integrity	Specifies the Zone Labs Integrity Server firewall type.
zonelabs-zonealarm	Specifies the Zone Labs Zone Alarm firewall type.
zonelabs-zonealarmorpro policy	Specifies the Zone Labs Zone Alarm or Pro firewall type.
zonelabs-zonealarmpro policy	Specifies the Zone Labs Zone Alarm Pro firewall type.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Group-policy configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	The **zonelabs-integrity** firewall type was added.

Usage Guidelines

Only one instance of this command can be configured.

To delete all firewall policies, use the **no client-firewall** command without arguments. This command deletes all configured firewall policies, including a null policy created by issuing the **client-firewall none** command.

When there are no firewall policies, users inherit any that exist in the default or other group policy. To prevent users from inheriting such firewall policies, use the **client-firewall none** command.

Examples

The following example shows how to set a client firewall policy that requires Cisco Intrusion Prevention Security Agent for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# client-firewall req cisco-security-agent
```

client trust-point

To specify the proxy trustpoint certificate to be presented during the TLS handshake when configuring the TLS Proxy for Cisco Unified Presence Server (CUPS), use the **client trust-point** command in tls-proxy configuration mode. To remove the proxy trustpoint certificate, use the **no** form of this command.

client trust-point *proxy_trustpoint*

no client trust-point [*proxy_trustpoint*]

Syntax Description

proxy_trustpoint	Specifies the trustpoint defined by the **crypto ca trustpoint** command.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tls proxy configuration	•	•	•	•	—

Command History

Release	Modification
8.0(4)	This command was introduced.

Usage Guidelines

The **client trust-point** command specifies the trustpoint and associated certificate that the ASA uses in the TLS handshake when the ASA assumes the role of the TLS client. The certificate must be owned by the ASA (identity certificate).

The certificate can be self-signed, enrolled with a certificate authority, or from an imported credential. The **client trust-point** command has precedence over the global **ssl trust-point** command.

Examples

The following example shows the use of the **client trust-point** command to specify the use of trustpoint "ent_y_proxy" in the TLS handshake with the TLS server. The handshake is likely to originate from entity Y to entity X, where the TLS server resides. The ASA functions as the TLS proxy for entity Y.

```
hostname(config-tlsp)# client trust-point ent_y_proxy
```

Usage Guidelines

When there are multiple trustpoints associated with the same CA certificate, only one of the trustpoints can be configured for a specific client type. However, one of the trustpoints can be configured for one client type and the other trustpoint with another client type.

If there is a trustpoint associated with the same CA certificate that is already configured with a client type, the new trustpoint is not allowed to be configured with the same client-type setting. The **no** form of the command clears the setting so that a trustpoint cannot be used for any client validation.

Remote access VPNs can use Secure Sockets Layer (SSL) VPN, IP Security (IPsec), or both, depending on deployment requirements, to permit access to any network application or resource.

Examples

The following example enters crypto ca trustpoint configuration mode for the trustpoint, central, and designates it as an SSL trustpoint:

```
hostname(config)# crypto ca trustpoint central
hostname(config-ca-trustpoint)# client-types ssl
hostname(config-ca-trustpoint)#
```

The following example enters crypto ca trustpoint configuration mode for the trustpoint, checkin1, and designated it as an IPsec trustpoint:

```
hostname(config)# crypto ca trustpoint checkin1
hostname(config-ca-trustpoint)# client-types ipsec
hostname(config-ca-trustpoint)#
```

Related Commands

Command	Description
crypto ca trustpoint	Enters trustpoint configuration mode.
id-usage	Specifies how the enrolled identity of a trustpoint can be used.
ssl trust-point	Specifies the certificate trustpoint that represents the SSL certificate for an interface.

client-update

To issue a client-update for all active remote VPN software and hardware clients and ASAs configured as Auto Update clients, on all tunnel-groups or for a particular tunnel group, use the **client-update** command in privileged EXEC mode.

To configure and change client-update parameters at the global level, including VPN software and hardware clients and ASAs configured as Auto Update clients, use the **client-update** command in global configuration mode.

To configure and change client-update tunnel-group IPsec-attributes parameters for VPN software and hardware clients, use the **client-update** command in tunnel-group ipsec-attributes configuration mode.

To disable a client update, use the **no** form of this command.

Global configuration mode command:

client-update {**enable** | **component** {**asdm** | **image**} | **device-id** *dev_string* | **family** *family_name* | **type** *type*} **url** *url-string* **rev-nums** *rev-nums*}

no client-update {**enable** | **component** {**asdm** | **image**} | **device-id** *dev_string* | **family** *family_name* | **type** *type*} **url** *url-string* **rev-nums** *rev-nums*}

Tunnel-group ipsec-attributes configuration mode command:

client-update type *type* **url** *url-string* **rev-nums** *rev-nums*

no client-update type *type* **url** *url-string* **rev-nums** *rev-nums*

Privileged EXEC mode command:

client-update {**all** | *tunnel-group*}

no client-update *tunnel-group*

Syntax Description

all	(Available only in privileged EXEC mode.) Applies the action to all active remote clients in all tunnel groups. You cannot use the keyword **all** with the **no** form of the command.
component {**asdm** | **image**}	The software component for ASAs configured as Auto Update clients.
device-id *dev_string*	If the Auto Update client is configured to identify itself with a unique string, specify the same string that the client uses. The maximum length is 63 characters.
enable	(Available only in global configuration mode). Enables remote client software updates.
family *family_name*	If the Auto Update client is configured to identify itself by device family, specify the same device family that the client uses. It can be asa, pix, or a text string with a maximum length of 7 characters.
rev-nums *rev-nums*	(Not available in privileged EXEC mode.) Specifies the software or firmware images for this client. For Windows, WIN9X, WinNT, and VPN3002 clients, enter up to 4, in any order, separated by commas. For ASAs, only one is allowed. The maximum length of the string is 127 characters.

tunnel-group	(Available only in privileged EXEC mode.) Specifies the name of a valid tunnel-group for remote client update.
type *type*	(Not available in privileged EXEC mode.) Specifies the operating systems of remote PCs or the type of ASAs (configured as Auto Update clients) to notify of a client update. The list is the following: • asa5505: Cisco 5505 Adaptive Security Appliance • asa5510: Cisco 5510 Adaptive Security Appliance • asa5520: Cisco 5520 Adaptive Security Appliance • asa5540: Cisco 5540 Adaptive Security Appliance • linux: A Linux client • mac: MAC OS X client • pix-515: Cisco PIX 515 Firewall • pix-515e: Cisco PIX 515E Firewall • pix-525: Cisco PIX 525 Firewall • pix-535: Cisco PIX 535 Firewall • Windows: all windows-based platforms • WIN9X: Windows 95, Windows 98, and Windows ME platforms • WinNT: Windows NT 4.0, Windows 2000, and Windows XP platforms • vpn3002: VPN 3002 hardware client • A text string of up to 15 characters
url *url-string*	(Not available in privileged EXEC mode.) Specifies the URL for the software/firmware image. This URL must point to a file appropriate for this client. The maximum string length is 255 characters.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•		—
Global configuration	•	—	•		—
Tunnel-group ipsec-attributes configuration	•	—	•		—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	Added the tunnel-group ipsec-attributes configuration mode.
7.2(1)	Added the **component**, **device-id**, and **family** keywords and their arguments to support the ASA configured as an Auto Update Server.

Usage Guidelines

In tunnel-group ipsec-attributes configuration mode, you can apply this attribute only to the IPsec remote-access tunnel-group type.

The **client-update** command lets you enable the update; specify the types and revision numbers of clients to which the update applies; provide a URL or IP address from which to get the update; and, in the case of Windows clients, optionally notify users that they should update their VPN client version. If the client is already running a software version on the list of revision numbers, it does not need to update its software. If the client is not running a software version on the list, it should update.

For Windows clients, you can provide a mechanism for users to accomplish that update. For VPN 3002 hardware client users, the update occurs automatically, with no notification. When the client type is another ASA, this ASA acts as an Auto Update server.

Note For all Windows clients and Auto Update clients, you must use the protocol “http://” or “https://” as the prefix for the URL. For the VPN 3002 hardware client, you must specify protocol “tftp://” instead.

Alternatively, for Windows clients and VPN 3002 hardware clients, you can configure client update just for individual tunnel-groups, rather than for all clients of a particular type.

Note You can have the browser automatically start an application by including the application name at the end of the URL; for example: https://support/updates/vpnclient.exe.

After you have enabled client update, you can define a set of client-update parameters for a particular IPsec- remote access tunnel group. To do this, in tunnel-group ipsec-attributes mode, specify the tunnel-group name and its type, and the URL or IP address from which to get the updated image. In addition, you must specify a revision number. If the user client revision number matches one of the specified revision numbers, there is no need to update the client; for example, to issue a client update for all Windows clients.

Optionally, you can send a notice to active users with outdated Windows clients that their VPN client needs updating. For these users, a dialog box appears, offering the opportunity to launch a browser and download the updated software from the site specified in the URL. The only part of this message that you can configure is the URL. Users who are not active get a notification message the next time they log in. You can send this notice to all active clients on all tunnel groups, or you can send it to clients on a particular tunnel group.

If the user client revision number matches one of the specified revision numbers, there is no need to update the client, and users receive no notification message. VPN 3002 clients update without user intervention, and users receive no notification message.

Note If you specify the client-update type as **windows** (specifying all Windows-based platforms) and later want to enter a client-update type of **win9x** or **winnt** for the same entity, you must first remove the windows client type with the **no** form of the command, then use new **client-update** commands to specify the new client types.

Examples

The following example, entered in global configuration mode, enables client update for all active remote clients on all tunnel groups:

```
hostname(config)# client-update enable
hostname#
```

The following example applies only to Windows (Win9x, WinNT). Entered in global configuration mode, it configures client update parameters for all Windows-based clients, including the revision number, 4.7 and the URL for retrieving the update, https://support/updates.

```
hostname(config)# client-update type windows url https://support/updates/ rev-nums 4.7
hostname(config)#
```

The following example applies only to VPN 3002 hardware clients. Entered in tunnel-group ipsec-attributes configuration mode, it configures client update parameters for the IPsec remote-access tunnel-group "salesgrp". It designates the revision number, 4.7 and uses the TFTP protocol for retrieving the updated software from the site with the IP address 192.168.1.1:

```
hostname(config)# tunnel-group salesgrp type ipsec-ra
hostname(config)# tunnel-group salesgrp ipsec-attributes
hostname(config-tunnel-ipsec)# client-update type vpn3002 url tftp:192.168.1.1 rev-nums
4.7
hostname(config-tunnel-ipsec)#
```

The following example shows how to issue a client update for clients that are Cisco 5520 ASAs configured as Auto Update clients:

```
hostname(config)# client-update type asa5520 component asdm url
http://192.168.1.114/aus/asdm501.bin rev-nums 7.2(1)
```

The following example, entered in privileged EXEC mode, sends a client-update notification to all connected remote clients in the tunnel group named "remotegrp" that need to update their client software. Clients in other groups do not get an update notification.

```
hostname# client-update remotegrp
hostname#
```

The following example, entered in privileged EXEC mode, notifies all active clients on all tunnel groups:

```
hostname# client-update all
hostname#
```

Related Commands

Command	Description
clear configure client-update	Clears the entire client-update configuration.
show running-config client-update	Shows the current client-update configuration.
tunnel-group ipsec-attributes	Configures the tunnel-group ipsec-attributes for this group.

clock set

To manually set the clock on the ASA, use the **clock set** command in privileged EXEC mode.

clock set *hh*:*mm*:*ss* {*month day* | *day month*} *year*

Syntax Description

day	Sets the day of the month, from 1 to 31. You can enter the day and month as **april 1** or as **1 april**, for example, depending on your standard date format.
hh:*mm*:*ss*	Sets the hour, minutes, and seconds in 24-hour time. For example, set **20:54:00** for 8:54 pm.
month	Sets the month. Depending on your standard date format, you can enter the day and month as **april 1** or as **1 april**.
year	Sets the year using four digits, for example, **2004**. The year range is 1993 to 2035.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

If you have not entered any **clock** configuration commands, the default time zone for the **clock set** command is UTC. If you change the time zone after you enter the **clock set** command using the **clock timezone** command, the time automatically adjusts to the new time zone. However, if you enter the **clock set** command after you establish the time zone with the **clock timezone** command, then enter the time appropriate for the new time zone and not for UTC. Similarly, if you enter the **clock summer-time** command after the **clock set** command, the time adjusts for daylight saving. If you enter the **clock set** command after the **clock summer-time** command, enter the correct time for daylight saving.

This command sets the time in the hardware chip, and does not save the time in the configuration file. This time endures reboots. Unlike the other **clock** commands, this command is a privileged EXEC command. To reset the clock, you need to set a new time for the **clock set** command.

Examples

The following example sets the time zone to MST, the daylight saving time to the default period in the U.S., and the current time for MDT to 1:15 p.m. on July 27, 2004:

```
hostname(config)# clock timezone MST -7
hostname(config)# clock summer-time MDT recurring
hostname(config)# exit
hostname# clock set 13:15:0 jul 27 2004
hostname# show clock
13:15:00.652 MDT Tue Jul 27 2004
```

The following example sets the clock to 8:15 on July 27, 2004 in the UTC time zone, and then sets the time zone to MST and the daylight saving time to the default period in the U.S. The end time (1:15 in MDT) is the same as the previous example.

```
hostname# clock set 20:15:0 jul 27 2004
hostname# configure terminal
hostname(config)# clock timezone MST -7
hostname(config)# clock summer-time MDT recurring
hostname# show clock
13:15:00.652 MDT Tue Jul 27 2004
```

Related Commands

Command	Description
clock summer-time	Sets the date range to show daylight saving time.
clock timezone	Sets the time zone.
show clock	Shows the current time.

clock summer-time

To set the date range for daylight saving time for the display of the ASA time, use the **clock summer-time** command in global configuration mode. To disable the daylight saving time dates, use the **no** form of this command.

clock summer-time *zone* **recurring** [*week weekday month hh*:*mm week weekday month hh*:*mm*] [*offset*]

no clock summer-time [*zone* **recurring** [*week weekday month hh*:*mm week weekday month hh*:*mm*] [*offset*]]

clock summer-time *zone* **date** {*day month* | *month day*} *year hh*:*mm* {*day month* | *month day*} *year hh*:*mm* [*offset*]

no clock summer-time [*zone* **date** {*day month* | *month day*} *year hh*:*mm* {*day month* | *month day*} *year hh*:*mm* [*offset*]]

Syntax Description

date	Specifies the start and end dates for daylight saving time as a specific date in a specific year. If you use this keyword, you need to reset the dates each year.
day	Sets the day of the month, from 1 to 31. You can enter the day and month as **April 1** or as **1 April**, for example, depending on your standard date format.
hh:mm	Sets the hour and minutes in 24-hour time.
month	Sets the month as a string. For the **date** command, you can enter the day and month as **April 1** or as **1 April**, for example, depending on your standard date format.
offset	(Optional) Sets the number of minutes to change the time for daylight saving time. By default, the value is 60 minutes.
recurring	Specifies the start and end dates for daylight saving time, in the form of a day and time of the month, and not a specific date in a year. This keyword lets you set a recurring date range that you do not need to alter yearly. If you do not specify any dates, the ASA uses the default date range for the United States: from 2:00 a.m. on the second Sunday in March to 2:00 a.m. on the first Sunday in November.
week	(Optional) Specifies the week of the month as an integer between 1 and 4 or as the words **first** or **last**. For example, if the day might fall in the partial fifth week, then specify **last**.
weekday	(Optional) Specifies the day of the week: **Monday**, **Tuesday**, **Wednesday**, and so on.
year	Sets the year using four digits, for example, **2004**. The year range is 1993 to 2035.
zone	Specifies the time zone as a string, for example, **PDT** for Pacific Daylight Time. When the ASA shows the daylight saving time according to the date range you set with this command, the time zone changes to the value you set here. See the **clock timezone** command to set the base time zone to a zone other than UTC.

Defaults

The default offset is 60 minutes.

The default recurring date range is from 2:00 a.m. on the second Sunday in March to 2:00 a.m. on the first Sunday in November.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
8.0(2)	The default recurring date range was changed to 2:00 a.m. on the second Sunday in March to 2:00 a.m. on the first Sunday in November.

Usage Guidelines

For the Southern Hemisphere, the ASA accepts the start month to be later in the year than the end month, for example, from October to March.

Examples

The following example sets the daylight saving date range for Australia:

```
hostname(config)# clock summer-time PDT recurring last Sunday October 2:00 last Sunday
March 2:00
```

Some countries start daylight saving on a specific date. In the following example, daylight saving time is configured to start on April 1, 2008, at 3 a.m. and end on October 1, 2008, at 4 a.m.

```
hostname(config)# clock summer-time UTC date 1 April 2008 3:00 1 October 2008 4:00
```

Related Commands

Command	Description
clock set	Manually sets the clock on the ASA.
clock timezone	Sets the time zone.
ntp server	Identifies an NTP server.
show clock	Shows the current time.

clock timezone

To set the time zone for the ASA clock, use the **clock timezone** command in global configuration mode. To set the time zone back to the default of UTC, use the **no** form of this command.

clock timezone *zone* [**-**]*hours* [*minutes*]

no clock timezone [*zone* [**-**]*hours* [*minutes*]]

Syntax Description

[**-**]*hours*	Sets the number of hours of offset from UTC. For example, PST is -8 hours.
minutes	(Optional) Sets the number of minutes of offset from UTC.
zone	Specifies the time zone as a string, for example, PST for Pacific Standard Time.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To set daylight saving time, see the **clock summer-time** command.

The **clock set** command or the time derived from an NTP server sets the time in UTC. You must set the time zone as an offset of UTC using this command.

Examples

The following example sets the time zone to Pacific Standard Time, which is -8 hours from UTC:

```
hostname(config)# clock timezone PST -8
```

Related Commands

Command	Description
clock set	Manually sets the clock on the ASA.
clock summer-time	Sets the date range to show daylight saving time.

Command	Description
ntp server	Identifies an NTP server.
show clock	Shows the current time.

cluster-ctl-file

To use trustpoints that are already created from an existing CTL file stored in flash memory, use the **cluster-ctl-file** command in ctl file configuration mode. To remove the CTL file configuration so that you can create a new CTL file, use the **no** form of this command.

cluster-ctl-file *filename_path*

no cluster-ctl-file *filename_path*

Syntax Description

filename_path	Specifies the path and filename of the CTL file stored on disk or stored in flash memory.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ctl-file configuration	•	—	•	—	—

Command History

Release	Modification
8.0(4)	The command was introduced.

Usage Guidelines

When this command is configured, the Phone Proxy parses the CTL file stored in flash memory and installs the trustpoints from that CTL file, then uses that file from flash in the creation of the new CTL file.

Examples

The following example parses the CTL file stored in flash memory to install the trustpoints from that file:

```
hostname(config-ctl-file)# cluster-ctl-file disk0:/old_ctlfile.tlv
```

Related Commands

Command	Description
ctl-file (global)	Specifies the CTL file to create for Phone Proxy configuration or the CTL file to parse from flash memory.
ctl-file (phone-proxy)	Specifies the CTL file to use for Phone Proxy configuration.
phone-proxy	Configures the Phone Proxy instance.

cluster encryption

To enable encryption for messages exchanged on the virtual load-balancing cluster, use the **cluster encryption** command in vpn load-balancing configuration mode. To disable encryption, use the **no** form of this command.

cluster encryption

no cluster encryption

Note VPN load balancing requires an active 3DES/AES license. The ASA checks for the existence of this crypto license before enabling load balancing. If it does not detect an active 3DES or AES license, the ASA prevents the enabling of load balancing and prevents internal configuration of 3DES by the load balancing system, unless the license permits this usage.

Syntax Description

This command has no arguments or keywords.

Defaults

Encryption is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Vpn load-balancing configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command turns encryption on or off for messages exchanged on the virtual load-balancing cluster.

Before configuring the **cluster encryption** command, you must have first used the **vpn load-balancing** command to enter vpn load-balancing configuration mode. You must also use the **cluster key** command to configure the cluster shared secret key before enabling cluster encryption.

Note When using encryption, you must first configure the command **isakmp enable** *inside*, where *inside* designates the load-balancing inside interface. If ISAKMP is not enabled on the load-balancing inside interface, an error message appears when you try to configure cluster encryption.

Examples

The following is an example of a VPN load-balancing command sequence that includes a **cluster encryption** command to enable encryption for the virtual load-balancing cluster:

```
hostname(config)# interface GigabitEthernet 0/1
hostname(config-if)# ip address 209.165.202.159 255.255.255.0
hostname(config)# nameif test
hostname(config)# interface GigabitEthernet 0/2
hostname(config-if)# ip address 209.165.201.30 255.255.255.0
hostname(config)# nameif foo
hostname(config)# vpn load-balancing
hostname(config-load-balancing)# interface lbpublic test
hostname(config-load-balancing)# interface lbprivate foo
hostname(config-load-balancing)# cluster ip address 209.165.202.224
hostname(config-load-balancing)# cluster key 123456789
hostname(config-load-balancing)# cluster encryption
hostname(config-load-balancing)# participate
```

Related Commands

Command	Description
cluster key	Specifies the shared-secret key for the cluster.
vpn load-balancing	Enters vpn load-balancing configuration mode.

cluster exec

To execute a command on all units in the cluster, or on a specific member, use the **cluster exec** command in privileged EXEC mode.

cluster exec [**unit** *unit_name*] *command*

Syntax Description

unit *unit_name*	(Optional) Performs the command on a specific unit. To view member names, enter **cluster exec unit ?** (to see all names except the current unit), or enter the **show cluster info** command.
command	Specifies the command you want to execute.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

Sending a **show** command to all members collects all output and displays it on the console of the current unit. Other commands, such as **capture** and **copy**, can also take advantage of cluster-wide execution.

Examples

To copy the same capture file from all units in the cluster at the same time to a TFTP server, enter the following command on the master unit:

```
hostname# cluster exec copy /pcap capture: tftp://10.1.1.56/capture1.pcap
```

Multiple PCAP files, one from each unit, are copied to the TFTP server. The destination capture file name is automatically attached with the unit name, such as capture1_asa1.pcap, capture1_asa2.pcap, and so on. In this example, asa1 and asa2 are cluster unit names.

The following sample output for the **cluster exec show port-channel** summary command shows EtherChannel information for each member in the cluster:

```
hostname# cluster exec show port-channel summary
primary(LOCAL):*********************************************************
 Number of channel-groups in use: 2
Group  Port-channel  Protocol  Span-cluster  Ports
------+-------------+-----------+-----------------------------------------------
```

```
1         Po1              LACP      Yes  Gi0/0(P)
2         Po2              LACP      Yes  Gi0/1(P)
 secondary:****************************************************************
 Number of channel-groups in use: 2
Group  Port-channel  Protocol  Span-cluster   Ports
------+-------------+-----------+-----------------------------------------------
1         Po1              LACP      Yes   Gi0/0(P)
2         Po2              LACP      Yes   Gi0/1(P)
```

Related Commands

Command	Description
cluster group	Enters cluster group configuration mode.
show cluster info	Shows cluster information.

cluster group

To configure the cluster bootstrap parameters and other cluster settings, use the **cluster group** command in global configuration mode. To clear the cluster configuration, use the **no** form of this command.

cluster group *name*

no cluster group *name*

Syntax Description

name	Specifies the cluster name as an ASCII string from 1 to 38 characters. You can only configure one cluster group per unit. All members of the cluster must use the same name.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

Each unit in the cluster requires a bootstrap configuration to join the cluster. Typically, the first unit you configure to join the cluster will be the master unit. After you enable clustering, after an election period, the cluster elects a master unit. With only one unit in the cluster initially, that unit will become the master unit. Subsequent units that you add to the cluster will be slave units.

Before you configure clustering, you need to set the cluster interface mode using the **cluster interface-mode** command.

You must use the console port or ASDM to enable or disable clustering. You cannot use Telnet or SSH.

Examples

The following example configures a management interface, configures a device-local EtherChannel for the cluster control link, disables the health check (temporarily), and then enables clustering for the ASA called “unit1,” which will become the master unit because it is added to the cluster first:

```
ip local pool mgmt 10.1.1.2-10.1.1.9
ipv6 local pool mgmtipv6 2001:DB8::1002/32 8

interface management 0/0
    nameif management
```

```
    ip address 10.1.1.1 255.255.255.0 cluster-pool mgmt
    ipv6 address 2001:DB8::1001/32 cluster-pool mgmtipv6
    security-level 100
    management-only
    no shutdown

interface tengigabitethernet 0/6
    channel-group 1 mode active
    no shutdown

interface tengigabitethernet 0/7
    channel-group 1 mode active
    no shutdown

cluster group pod1
    local-unit unit1
    cluster-interface port-channel1 ip 192.168.1.1 255.255.255.0
    priority 1
    key chuntheunavoidable
    no health-check
    enable noconfirm
```

The following example includes the configuration for a slave unit, unit2:

```
interface tengigabitethernet 0/6
    channel-group 1 mode active
    no shutdown

interface tengigabitethernet 0/7
    channel-group 1 mode active
    no shutdown

cluster group pod1
    local-unit unit2
    cluster-interface port-channel1 ip 192.168.1.2 255.255.255.0
    priority 2
    key chuntheunavoidable
    no health-check
    enable as-slave
```

Related Commands

Command	Description
clacp system-mac	When using spanned EtherChannels, the ASA uses cLACP to negotiate the EtherChannel with the neighbor switch.
cluster-interface	Specifies the cluster control link interface.
cluster interface-mode	Sets the cluster interface mode.
conn-rebalance	Enables connection rebalancing.
console-replicate	Enables console replication from slave units to the master unit.
enable (cluster group)	Enables clustering.
health-check	Enables the cluster health check feature, which includes unit health monitoring and interface health monitoring.
key	Sets an authentication key for control traffic on the cluster control link.
local-unit	Names the cluster member.

Command	Description
mtu cluster-interface	Specifies the maximum transmission unit for the cluster control link interface.
priority (cluster group)	Sets the priority of this unit for master unit elections.

cluster ip address

To set the IP address of the virtual load-balancing cluster, use the **cluster ip address** command in vpn load-balancing configuration mode. To remove the IP address specification, use the **no** form of this command.

cluster ip address *ip-address*

no cluster ip address [*ip-address*]

Syntax Description

ip-address	The IP address that you want to assign to the virtual load-balancing cluster.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Vpn load-balancing configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You must first use the **vpn load-balancing** command to enter vpn load-balancing configuration mode and configure the interface to which the virtual cluster IP address refers.

The cluster IP address must be on the same subnet as the interface for which you are configuring the virtual cluster.

In the **no** form of the command, if you specify the optional *ip-address* value, it must match the existing cluster IP address before the **no cluster ip address** command can be completed.

Examples

The following example shows a VPN load-balancing command sequence that includes a **cluster ip address** command that sets the IP address of the virtual load-balancing cluster to 209.165.202.224:

```
hostname(config)# interface GigabitEthernet 0/1
hostname(config-if)# ip address 209.165.202.159 255.255.255.0
hostname(config)# nameif test
hostname(config)# interface GigabitEthernet 0/2
hostname(config-if)# ip address 209.165.201.30 255.255.255.0
hostname(config)# nameif foo
hostname(config)# vpn load-balancing
hostname(config-load-balancing)# interface lbpublic test
```

```
hostname(config-load-balancing)# interface lbprivate foo
hostname(config-load-balancing)# cluster ip address 209.165.202.224
hostname(config-load-balancing)# participate
```

Related Commands

Command	Description
interface	Sets the interfaces of the device.
nameif	Assigns a name to an interface.
vpn load-balancing	Enters vpn load-balancing configuration mode.

cluster key

To set the shared secret for IPsec site-to-site tunnel exchanges on the virtual load-balancing cluster, use the **cluster key** command in vpn load-balancing configuration mode. To remove this specification, use the **no** form of this command.

cluster key *shared-secret*

no cluster key [*shared-secret*]

Syntax Description

shared-secret	A 3- through 17-character string that defines the shared secret for the VPN load-balancing cluster. Special characters can appear in the string, but not spaces.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Vpn load-balancing configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You must first use the **vpn load-balancing** command to enter vpn load-balancing configuration mode. The shared secret defined in the **cluster key** command is also used for cluster encryption.

You must use the **cluster key** command to configure the shared secret before enabling cluster encryption.

If you specify a value for *shared-secret* in the **no cluster key** form of the command, the shared secret value must match the existing configuration.

Examples

The following example shows a VPN load-balancing command sequence that includes a **cluster key** command to set the shared secret of the virtual load-balancing cluster to 123456789:

```
hostname(config)# interface GigabitEthernet 0/1
hostname(config-if)# ip address 209.165.202.159 255.255.255.0
hostname(config)# nameif test
hostname(config)# interface GigabitEthernet 0/2
hostname(config-if)# ip address 209.165.201.30 255.255.255.0
hostname(config)# nameif foo
hostname(config)# vpn load-balancing
```

```
hostname(config-load-balancing)# interface lbpublic test
hostname(config-load-balancing)# interface lbprivate foo
hostname(config-load-balancing)# cluster ip address 209.165.202.224
hostname(config-load-balancing)# cluster key 123456789
hostname(config-load-balancing)# cluster encryption
hostname(config-load-balancing)# participate
```

Related Commands

Command	Description
vpn load-balancing	Enters vpn load-balancing configuration mode.

cluster master unit

To set a new unit as the master unit of an ASA cluster, use the **cluster master unit** command in privileged EXEC mode.

cluster master unit *unit_name*

Caution The best method to change the master unit is to disable clustering on the master unit (see the **no cluster enable** command), waiting for a new master election, and then re-enabling clustering. If you must specify the exact unit you want to become the master, use the **cluster master unit** command. Note, however, that for centralized features, if you force a master unit change using this command, then all connections are dropped, and you have to re-establish the connections on the new master unit.

Syntax Description

unit_name	Specifies the local unit name to be the new master unit. To view member names, enter **cluster master unit ?** (to see all names except the current unit), or enter the **show cluster info** command.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

You will need to reconnect to the main cluster IP address.

Examples

The following example sets asa2 as the master unit:

```
hostname# cluster master unit asa2
```

Related Commands

Command	Description
cluster exec	Sends a command to all cluster members.

Command	Description
cluster group	Configures a cluster.
cluster remove unit	Removes the unit from the cluster.

cluster remove unit

To remove the unit from the ASA cluster, use the cluster remove unit command in privileged EXEC mode.

cluster remove unit *unit_name*

Syntax Description

unit_name	Specifies the local unit name to removes from the cluster. To view member names, enter **cluster remove unit ?**, or enter the **show cluster info** command.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

The bootstrap configuration remains intact, as well as the last configuration synced from the master unit, so you can later re-add the unit without losing your configuration. If you enter this command on a slave unit to remove the master unit, a new master unit is elected.

Examples

The following example checks for unit names, and then removes asa2 from the cluster:

```
hostname(config)# cluster remove unit ?

Current active units in the cluster:
asa2

hostname(config)# cluster remove unit asa2
WARNING: Clustering will be disabled on unit asa2. To bring it back
to the cluster please logon to that unit and re-enable clustering
```

Related Commands

Command	Description
cluster exec	Sends a command to all cluster members.
cluster group	Configures a cluster.
cluster master unit	Sets a new unit as the master unit of an ASA cluster.

cluster-interface

To specify the cluster control link physical interface and IP address, use the **cluster-interface** command in cluster group configuration mode. To remove the cluster interface, use the **no** form of this command.

cluster-interface *interface_id* **ip** *ip_address mask*

no cluster-interface [*interface_id* **ip** *ip_address mask*]

Syntax Description

interface_id	Specifies a physical interface, an EtherChannel, or a redundant interface. Subinterfaces and Management interfaces are not allowed. This interface cannot have a **nameif** configured. For the ASA 5585-X with an IPS module, you cannot use the IPS module interfaces for the cluster control link.
ip *ip_address mask*	Specify an IPv4 address for the IP address; IPv6 is not supported for this interface. For each unit, specify a different IP address on the same network.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Cluster group configuration	•	•	•	—	•

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

You need to enable the cluster control link interface before you join the cluster.

We recommend that you combine multiple cluster control link interfaces into an EtherChannel if you have enough interfaces. The EtherChannel is local to the ASA, and is not a spanned EtherChannel. We recommend that you use a Ten Gigabit Ethernet interface for the cluster control link. We recommend using the On mode for EtherChannel member interfaces to reduce unnecessary traffic on the cluster control link. The cluster control link does not need the overhead of LACP traffic because it is an isolated, stable network.

The cluster control link interface configuration is not replicated from the master unit to slave units; however, you must use the same configuration on each unit. Because this configuration is not replicated, you must configure the cluster control link interfaces separately on each unit.

See the configuration guide for more information about the cluster control link.

Examples

The following example creates an EtherChannel, Port-channel 2, for TenGigabitEthernet 0/6 and TenGigabitEthernet 0/7, and then assigns the port channel as the cluster control link. The port-channel interface is created automatically when you assign an interface to the channel group.

```
interface tengigabitethernet 0/6
    channel-group 2 mode on
    no shutdown

interface tengigabitethernet 0/7
    channel-group 2 mode on
    no shutdown

cluster group cluster1
    cluster-interface port-channel2 ip 10.1.1.1 255.255.255.0
```

Related Commands

Command	Description
clacp system-mac	When using spanned EtherChannels, the ASA uses cLACP to negotiate the EtherChannel with the neighbor switch.
cluster group	Names the cluster and enters cluster configuration mode.
cluster interface-mode	Sets the cluster interface mode.
conn-rebalance	Enables connection rebalancing.
console-replicate	Enables console replication from slave units to the master unit.
enable (cluster group)	Enables clustering.
health-check	Enables the cluster health check feature, which includes unit health monitoring and interface health monitoring.
key	Sets an authentication key for control traffic on the cluster control link.
local-unit	Names the cluster member.
mtu cluster-interface	Specifies the maximum transmission unit for the cluster control link interface.
priority (cluster group)	Sets the priority of this unit for master unit elections.

cluster-mode

To specify the security mode of the cluster, use the **cluster-mode** command in phone-proxy configuration mode. To set the security mode of the cluster to the default mode, use the **no** form of this command.

cluster-mode [**mixed** | **nonsecure**]

no cluster-mode [**mixed** | **nonsecure**]

Syntax Description

mixed	Specifies the cluster mode to be in mixed mode when configuring the Phone Proxy feature.
nonsecure	Specifies the cluster mode to be in nonsecure mode when configuring the Phone Proxy feature.

Defaults

The default cluster mode is nonsecure.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Phone-proxy configuration	•	—	•	—	—

Command History

Release	Modification
8.0(4)	The command was introduced.

Usage Guidelines

When you are configuring the Phone Proxy to run in mixed-mode clusters (both secure and nonsecure modes), you must also configure the LDC issuer in case some phones are configured to be in authenticated or encrypted mode:

```
hostname(config)# crypto key generate rsa label ldc_signer_key modulus 1024
hostname(config)# crypto key generate rsa label phone_common modulus 1024
hostname(config)# tls-proxy my_proxy
hostname(config-tlsp)# server trust-point internal_PP_myctl
hostname(config-tlsp)# client ldc issuer ldc_server
hostname(config-tlsp)# client ldc keypair phone_common
```

Examples

The following example sets the security mode of the Phone Proxy to mixed (the IP phones will operate in secure and nonsecure modes):

```
hostname(config-phone-proxy)# cluster-mode mixed
```

Related Commands

Command	Description
phone-proxy	Configures the Phone Proxy instance.
tls-proxy	Configures the TLS Proxy instance.

cluster port

To set the UDP port for the virtual load-balancing cluster, use the **cluster port** command in vpn load-balancing configuration mode. To remove the port specification, use the **no** form of this command.

cluster port *port*

no cluster port [*port*]

Syntax Description

port	The UDP port that you want to assign to the virtual load-balancing cluster.

Defaults

The default cluster port is 9023.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Vpn load-balancing configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You must first use the **vpn load-balancing** command to enter vpn load-balancing configuration mode.

You can specify any valid UDP port number. The range is 1-65535.

If you specify a value for *port* in the **no cluster port** form of the command, the port number specified must match the existing configured port number.

Examples

The following example sets the UDP port for the virtual load-balancing cluster to 9023:

```
hostname(config)# interface GigabitEthernet 0/1
hostname(config-if)# ip address 209.165.202.159 255.255.255.0
hostname(config)# nameif test
hostname(config)# interface GigabitEthernet 0/2
hostname(config-if)# ip address 209.165.201.30 255.255.255.0
hostname(config)# nameif foo
hostname(config)# vpn load-balancing
hostname(config-load-balancing)# interface lbpublic test
hostname(config-load-balancing)# interface lbprivate foo
hostname(config-load-balancing)# cluster ip address 209.165.202.224
hostname(config-load-balancing)# cluster port 9023
hostname(config-load-balancing)# participate
```

Related Commands

Command	Description
vpn load-balancing	Enters vpn load-balancing configuration mode.

command-alias

To create an alias for a command, use the **command-alias** command in global configuration mode. To remove the alias, use the **no** form of this command.

command-alias *mode command_alias original_command*

no command-alias *mode command_alias original_command*

Syntax Description

command_alias	Specifies the new name for an existing command.
mode	Specifies the command mode in which you want to create the command alias, for example **exec** (for user and privileged EXEC modes), **configure**, or **interface**.
original_command	Specifies the existing command or command with its keywords for which you want to create the command alias.

Defaults

By default, the following user EXEC mode aliases are configured:

- **h** for **help**
- **lo** for **logout**
- **p** for **ping**
- **s** for **show**

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

When you enter the command alias, the original command is invoked. You might want to create command aliases to provide shortcuts for long commands, for example.

You can create an alias for the first part of any command and still enter the additional keywords and arguments as normal.

When you use CLI help, command aliases are indicated by an asterisk (*), and displayed in the following format:

```
*command-alias=original-command
```

For example, the **lo** command alias displays along with other privileged EXEC mode commands that start with "lo," as follows:

```
hostname# lo?
*lo=logout login  logout
```

You can use the same alias in different modes. For example, you can use "happy" in privileged EXEC mode and configuration mode to alias different commands, as follows:

```
hostname(config)# happy?

configure mode commands/options:
*happy="username employee1 password test"

exec mode commands/options:
*happy=enable
```

To list only commands and omit aliases, begin your input line with a space. Also, to circumvent command aliases, use a space before entering the command. In the following example, the alias named "happy" is not shown, because there is a space before the **happy?** command.

```
hostname(config)# alias exec test enable
hostname(config)# exit
hostname#   happy?
ERROR: % Unrecognized command
```

As with commands, you can use CLI help to display the arguments and keywords that can follow a command alias.

You must enter the complete command alias. Shortened aliases are not accepted. In the following example, the parser does not recognize the **hap** command as indicating the alias named "happy":

```
hostname# hap
% Ambiguous command: "hap"
```

Examples

The following example shows how to create a command alias named "save" for the **copy running-config startup-config** command:

```
hostname(config)# command-alias exec save copy running-config startup-config
hostname(config)# exit
hostname# save

Source filename [running-config]?
Cryptochecksum: 50d131d9 8626c515 0c698f7f 613ae54e

2209 bytes copied in 0.210 secs
hostname#
```

Related Commands

Command	Description
clear configure command-alias	Clears all nondefault command aliases.
show running-config command-alias	Displays all nondefault command aliases configured.

command-queue

To specify the maximum number of MGCP commands that are queued while waiting for a response, use the **command-queue** command in mgcp-map configuration mode. To remove the configuration, use the **no** form of this command.

command-queue *limit*

no command-queue *limit*

Syntax Description

limit	Specifies the maximum number of commands to queue, from 1 to 2147483647.

Defaults

This command is disabled by default.

The default for the MGCP command queue is 200.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Mgcp-map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Use the **command-queue** command to specify the maximum number of MGCP commands that are queued while waiting for a response. The range of allowed values is from 1 to 4294967295. The default is 200. When the limit has been reached and a new command arrives, the command that has been in the queue for the longest time is removed.

Examples

The following example limits the MGCP command queue to 150 commands:

```
hostname(config)# mgcp-map mgcp_policy
hostname(config-mgcp-map)#command-queue 150
```

Related Commands

Commands	Description
debug mgcp	Enables the display of debugging information for MGCP.
mgcp-map	Defines an MGCP map and enables MGCP map configuration mode.

Commands	Description
show mgcp	Displays MGCP configuration and session information.
timeout	Configures the idle timeout after which an MGCP media or MGCP PAT xlate connection will be closed.

compatible rfc1583

To restore the method that is used to calculate the summary route costs per RFC 1583, use the **compatible rfc1583** command in router configuration mode. To disable RFC 1583 compatibility, use the **no** form of this command.

compatible rfc1583

no compatible rfc1583

Syntax Description

This command has no arguments or keywords.

Defaults

This command is enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Only the **no** form of this command appears in the configuration.

Examples

The following example shows how to disable an RFC 1583-compatible route summary cost calculation:

```
hostname(config-router)# no compatible rfc1583
hostname(config-router)#
```

Related Commands

Command	Description
router ospf	Enters router configuration mode.
show running-config router	Displays the commands in the global router configuration.

compression

To enable compression for SVC connections and WebVPN connections, use the **compression** command in global configuration mode. To remove the command from the configuration, use the **no** form of the command.

compression {**all** | **svc** | **http-comp**}

no compression {**all** | **svc** | **http-comp**}

Syntax Description

all	Specifies enabling all available compression techniques.
http-comp	Specifies compression for WebVPN connections.
svc	Specifies compression for SVC connections.

Defaults

The default is *all*. All available compression techniques are enabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	—	•		—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

For SVC connections, the **compression** command configured in global configuration mode overrides the **svc compression** command configured in group policy webvpn and username webvpn configuration modes.

For example, if you enter the **svc compression** command for a certain group in group policy webvpn configuration mode, and then you enter the **no compression** command in global configuration mode, you override the **svc compression** command settings that you have configured for the group.

Conversely, if you turn compression back on with the **compression** command in global configuration mode, any group settings take effect, and those settings ultimately determine the compression behavior.

If you disable compression with the **no compression** command, only new connections are affected. Active connections remain unaffected.

Examples

In the following example, compression is turned on for SVC connections:

```
hostname(config)# compression svc
```

In the following example, compression is disabled for SVC and WebVPN connections:

```
hostname(config)# no compression svc http-comp
```

Related Commands

Command	Description
show webvpn svc	Displays information about the SVC installation.
svc	Enables or requires the SVC for a specific group or user.
svc compression	Enables compression of HTTP data over an SVC connection for a specific group or user.

config-register

To set the configuration register value that is used the next time you reload the ASA, use the **config-register** command in global configuration mode. To set the value back to the default, use the **no** form of this command.

config-register *hex_value*

no config-register

Syntax Description

hex_value	Sets the configuration register value as a hexadecimal number from 0x0 to 0xFFFFFFFF. This number represents 32 bits and each hexadecimal character represents 4 bits. Each bit controls a different characteristic. However, bits 32 through 20 are either reserved for future use, cannot be set by the user, or are not currently used by the ASA; therefore, you can ignore the three characters that represent those bits, because they are always set to 0. The relevent bits are represented by 5 hexadecimal characters: 0x*nnnnn*. You do not need to include preceding 0s. You do need to include trailing 0s. For example, 0x2001 is equivalent to 0x02001; but 0x10000 requires all the zeros. See Table 10-1 for more information about available values for the relevant bits.

Defaults

The default value is 0x1, which boots from the local image and startup configuration.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command is only supported on the ASA 5500 series. The configuration register value determines which image to boot from as well as other boot parameters.

The five characters are numbered from 0 to 4 from right to left, which is standard for hexadecimal and binary numbers. You can select one value for each character, and mix and match values as appropriate. For example, you can select either 0 or 2 for character number 3. Some values take priority if they conflict with other values. For example, if you set 0x2011, which sets the ASA to both boot from the

TFTP server and to boot from the local image, the ASA boots from the TFTP server. Because this value also stipulates that if the TFTP boot fails, the ASA should boot directly into ROMMON, then the action that specifies to boot from the default image is ignored.

A value of 0 means no action unless otherwise specified.

Table 10-1 lists the actions associated with each hexadecimal character; choose one value for each character:

Table 10-1 Configuration Register Values

Prefix	Hexadecimal Character Numbers 4, 3, 2, 1, and 0				
0x	**0**	**0**	**0**[1]	**0**[2]	**0**[2]
	1 Disables the 10 second ROMMON countdown during startup. Normally, you can press Escape during the countdown to enter ROMMON.	**2** If you set the ASA to boot from a TFTP server, and the boot fails, then this value boots directly into ROMMON.		**1** Boots from the TFTP server image as specified in the ROMMON Boot Parameters (which is the same as the **boot system tftp** command, if present). This value takes precedence over a value set for character 1.	**1** Boots the image specified by the first **boot system** *local_flash* command. If that image does not load, the ASA tries to boot each image specified by subsequent **boot system** commands until it boots successfully.
					2, **4**, **6**, **8** Boots the image specified by a particular **boot system** *local_flash* command. Value 3 boots the image specified in the first **boot system** command, value 5 boots the second image, and so on. If the image does not boot successfully, the ASA does not attempt to fall back to other **boot system** command images (this is the difference between using value 1 and value 3). However, the ASA has a failsafe feature that in the event of a boot failure attempts to boot from any image found in the root directory of internal flash memory. If you do not want the failsafe feature to take effect, store your images in a different directory than root.
				4[3] Ignores the startup configuration and loads the default configuration.	**2**, **4**, **6**, **8** From ROMMON, if you enter the **boot** command without any arguments, then the ASA boots the image specified by a particular **boot system** *local_flash* command. Value 3 boots the image specified in the first **boot system** command, value 5 boots the second image, and so on. This value does not automatically boot an image.
				5 Performs both actions above.	

1. Reserved for future use.
2. If character numbers 0 and 1 are not set to automatically boot an image, then the ASA boots directly into ROMMON.
3. If you disable password recovery using the **service password-recovery** command, then you cannot set the configuration register to ignore the startup configuration.

The configuration register value is not replicated to a standby unit, but the following warning is displayed when you set the configuration register on the active unit:

```
WARNING The configuration register is not synchronized with the standby, their values may
not match.
```

You can also set the configuration register value in ROMMON using the **confreg** command.

Examples

The following example sets the configuration register to boot from the default image:

```
hostname(config)# config-register 0x1
```

Related Commands

Command	Description
boot	Sets the boot image and startup configuration.
service password-recovery	Enables or disables password recovery.

configure factory-default

To restore the configuration to the factory default, use the **configure factory-default** command in global configuration mode.

configure factory-default [*ip_address* [*mask*]]

Syntax Description

ip_address	Sets the IP address of the management or inside interface, instead of using the default address, 192.168.1.1. See the "Usage Guidelines" sections for more information about which interface is configured for your model.
mask	Sets the subnet mask of the interface. If you do not set a mask, the ASA uses the mask appropriate for the IP address class.

Defaults

The default IP address and mask are 192.168.1.1 and 255.255.255.0.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	A factory default configuration was added for the ASA 5505.

Usage Guidelines

The factory default configuration is the configuration applied by Cisco to new ASAs. This command is supported on all platforms except for the PIX 525 and PIX 535 ASAs.

For the PIX 515/515E and the ASA 5510 and higher ASAs, the factory default configuration automatically configures a management interface so you can connect to it using ASDM, with which you can then complete your configuration. For the ASA 5505, the factory default configuration automatically configures interfaces and NAT so that the ASA is ready to use in your network.

This command is available only for routed firewall mode; transparent mode does not support IP addresses for interfaces, and setting the interface IP address is one of the actions this command takes. This command is also only available in single context mode; an ASA with a cleared configuration does not have any defined contexts to automatically configure using this command.

This command clears the current running configuration and then configures several commands.

If you set the IP address in the **configure factory-default** command, then the **http** command uses the subnet that you specify. Similarly, the **dhcpd address** command range consists of addresses within the subnet that you specify.

After you restore the factory default configuration, save it to internal flash memory using the **write memory** command. The **write memory** command saves the running configuration to the default location for the startup configuration, even if you previously configured the **boot config** command to set a different location; when the configuration was cleared, this path was also cleared.

Note This command also clears the **boot system** command, if present, along with the rest of the configuration. The **boot system** command lets you boot from a specific image, including an image on the external flash memory card. The next time you reload the ASA after restoring the factory configuration, it boots from the first image in internal flash memory; if you do not have an image in internal flash memory, the ASA does not boot.

To configure additional settings that are useful for a full configuration, see the **setup** command.

ASA 5505 Configuration

The default factory configuration for the ASA 5505 configures the following:

- An inside VLAN 1 interface that includes the Ethernet 0/1 through 0/7 switch ports. If you did not set the IP address in the **configure factory-default** command, then the VLAN 1 IP address and mask are 192.168.1.1 and 255.255.255.0.
- An outside VLAN 2 interface that includes the Ethernet 0/0 switch port. VLAN 2 derives its IP address using DHCP.
- The default route is also derived from DHCP.
- All inside IP addresses are translated when accessing the outside using interface PAT.
- By default, inside users can access the outside with an access list, and outside users are prevented from accessing the inside.
- The DHCP server is enabled on the ASA, so a PC connecting to the VLAN 1 interface receives an address between 192.168.1.2 and 192.168.1.254.
- The HTTP server is enabled for ASDM and is accessible to users on the 192.168.1.0 network.

The configuration consists of the following commands:

```
interface Ethernet 0/0
   switchport access vlan 2
   no shutdown
interface Ethernet 0/1
   switchport access vlan 1
   no shutdown
interface Ethernet 0/2
   switchport access vlan 1
   no shutdown
interface Ethernet 0/3
   switchport access vlan 1
   no shutdown
interface Ethernet 0/4
   switchport access vlan 1
   no shutdown
interface Ethernet 0/5
   switchport access vlan 1
   no shutdown
interface Ethernet 0/6
   switchport access vlan 1
   no shutdown
interface Ethernet 0/7
   switchport access vlan 1
   no shutdown
```

```
interface vlan2
   nameif outside
   no shutdown
   ip address dhcp setroute
interface vlan1
   nameif inside
   ip address 192.168.1.1 255.255.255.0
   security-level 100
   no shutdown
global (outside) 1 interface
nat (inside) 1 0 0
http server enable
http 192.168.1.0 255.255.255.0 inside
dhcpd address 192.168.1.2-192.168.1.254 inside
dhcpd auto_config outside
dhcpd enable inside
logging asdm informational
```

ASA 5510 and Higher Configuration

The default factory configuration for the ASA 5510 and higher configures the following:

- The management Management 0/0 interface. If you did not set the IP address in the **configure factory-default** command, then the IP address and mask are 192.168.1.1 and 255.255.255.0.
- The DHCP server is enabled on the ASA, so a PC connecting to the interface receives an address between 192.168.1.2 and 192.168.1.254.
- The HTTP server is enabled for ASDM and is accessible to users on the 192.168.1.0 network.

The configuration consists of the following commands:

```
interface management 0/0
   ip address 192.168.1.1 255.255.255.0
   nameif management
   security-level 100
   no shutdown
asdm logging informational 100
asdm history enable
http server enable
http 192.168.1.0 255.255.255.0 management
dhcpd address 192.168.1.2-192.168.1.254 management
dhcpd lease 3600
dhcpd ping_timeout 750
dhcpd enable management
```

PIX 515/515E Security Appliance Configuration

The default factory configuration for the PIX 515/515E security appliance configures the following:

- The inside Ethernet1 interface. If you did not set the IP address in the **configure factory-default** command, then the IP address and mask are 192.168.1.1 and 255.255.255.0.
- The DHCP server is enabled on the PIX security appliance, so a PC connecting to the interface receives an address between 192.168.1.2 and 192.168.1.254.
- The HTTP server is enabled for ASDM and is accessible to users on the 192.168.1.0 network.

The configuration consists of the following commands:

```
interface ethernet 1
   ip address 192.168.1.1 255.255.255.0
   nameif management
   security-level 100
   no shutdown
```

```
asdm logging informational 100
asdm history enable
http server enable
http 192.168.1.0 255.255.255.0 management
dhcpd address 192.168.1.2-192.168.1.254 management
dhcpd lease 3600
dhcpd ping_timeout 750
dhcpd enable management
```

Examples

The following example resets the configuration to the factory default, assigns the IP address 10.1.1.1 to the interface, and then saves the new configuration as the startup configuration:

```
hostname(config)# configure factory-default 10.1.1.1 255.255.255.0
Based on the inside IP address and mask, the DHCP address
pool size is reduced to 253 from the platform limit 256

WARNING: The boot system configuration will be cleared.
The first image found in disk0:/ will be used to boot the
system on the next reload.
Verify there is a valid image on disk0:/ or the system will
not boot.

Begin to apply factory-default configuration:
Clear all configuration
...
hostname(config)#
hostname(config)# copy running-config startup-config
```

Related Commands

Command	Description
boot system	Sets the software image from which to boot.
clear configure	Clears the running configuration.
copy running-config startup-config	Copies the running configuration to the startup configuration.
setup	Prompts you to configure basic settings for the ASA.
show running-config	Shows the running configuration.

configure http

To merge a configuration file from an HTTP(S) server with the running configuration, use the **configure http** command in global configuration mode.

configure http[**s**]**://**[*user*[**:***password*]@]*server*[:*port*]**/**[*path***/**]*filename*

Syntax Description

:password	(Optional) For HTTP(S) authentication, specifies the password.
:*port*	(Optional) Specifies the port. For HTTP, the default is 80. For HTTPS, the default is 443.
@	(Optional) If you enter a name and/or a password, precedes the server IP address with an at sign (@).
filename	Specifies the configuration filename.
http[**s**]	Specifies either HTTP or HTTPS.
path	(Optional) Specifies a path to the filename.
server	Specifies the server IP address or name. For IPv6 server addresses, if you specify the port, then you must enclose the IP address in brackets so that the colons in the IP address are not mistaken for the colon before the port number. For example, enter the following address and port: `[fe80::2e0:b6ff:fe01:3b7a]:8080`
user	(Optional) For HTTP(S) authentication, specifies the username.

Defaults

For HTTP, the default port is 80. For HTTPS, the default port is 443.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command supports IPv4 and IPv6 addresses. A merge adds all commands from the new configuration to the running configuration, and overwrites any conflicting commands with the new versions. For example, if a command allows multiple instances, the new commands are added to the existing commands in the running configuration. If a command allows only one instance, the new command overwrites the command in the running configuration. A merge never removes commands that exist in the running configuration, but are not set in the new configuration.

This command is the same as the **copy http running-config** command. For multiple context mode, that command is only available in the system execution space, so the **configure http** command is an alternative for use within a context.

Examples

The following example copies a configuration file from an HTTPS server to the running configuration:

```
hostname(config)# configure https://user1:pa$$w0rd@10.1.1.1/configs/newconfig.cfg
```

Related Commands

Command	Description
clear configure	Clears the running configuration.
configure memory	Merges the startup configuration with the running configuration.
configure net	Merges a configuration file from the specified TFTP URL with the running configuration.
configure factory-default	Adds commands that you enter at the CLI to the running configuration.
show running-config	Shows the running configuration.

configure memory

To merge the startup configuration with the running configuration, use the **configure memory** command in global configuration mode.

configure memory

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

A merge adds all commands from the new configuration to the running configuration, and overwrites any conflicting commands with the new versions. For example, if a command allows multiple instances, the new commands are added to the existing commands in the running configuration. If a command allows only one instance, the new command overwrites the command in the running configuration. A merge never removes commands that exist in the running configuration, but are not set in the new configuration.

If you do not want to merge the configurations, you can clear the running configuration, which disrupts any communications through the ASA, and then enter the **configure memory** command to load the new configuration.

This command is equivalent to the **copy startup-config running-config** command.

For multiple context mode, a context startup configuration is at the location specified by the **config-url** command.

Examples

The following example copies the startup configuration to the running configuration:

```
hostname(config)# configure memory
```

Related Commands

Command	Description
clear configure	Clears the running configuration.
configure http	Merges a configuration file from the specified HTTP(S) URL with the running configuration.
configure net	Merges a configuration file from the specified TFTP URL with the running configuration.
configure factory-default	Adds commands that you enter at the CLI to the running configuration.
show running-config	Shows the running configuration.

configure net

To merge a configuration file from a TFTP server with the running configuration, use the **configure net** command in global configuration mode.

configure net [*server***:**[*filename*] | **:***filename*]

Syntax Description

:*filename*	Specifies the path and filename. If you already set the filename using the **tftp-server** command, then this argument is optional. If you specify the filename in this command as well as a name in the **tftp-server** command, the ASA treats the **tftp-server** command filename as a directory, and adds the **configure net** command filename as a file under the directory. To override the **tftp-server** command value, enter a slash in front of the path and filename. The slash indicates that the path is not relative to the tftpboot directory, but is an absolute path. The URL generated for this file includes a double slash (//) in front of the filename path. If the file you want is in the tftpboot directory, you can include the path for the tftpboot directory in the filename path. If you specified the TFTP server address using the **tftp-server** command, you can enter the filename alone preceded by a colon (:).
*server***:**	Sets the TFTP server IP address or name. This address overrides the address you set in the **tftp-server** command, if present. For IPv6 server addresses, you must enclose the IP address in brackets so that the colons in the IP address are not mistaken for the colon before the filename. For example, enter the following address: [fe80::2e0:b6ff:fe01:3b7a] The default gateway interface is the highest security interface; however, you can set a different interface name using the **tftp-server** command.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command supports IPv4 and IPv6 addresses. A merge adds all commands from the new configuration to the running configuration, and overwrites any conflicting commands with the new versions. For example, if a command allows multiple instances, the new commands are added to the existing commands in the running configuration. If a command allows only one instance, the new command overwrites the command in the running configuration. A merge never removes commands that exist in the running configuration, but are not set in the new configuration.

This command is the same as the **copy tftp running-config** command. For multiple context mode, that command is only available in the system execution space, so the **configure net** command is an alternative for use within a context.

Examples

The following example sets the server and filename in the **tftp-server** command, and then overrides the server using the **configure net** command. The same filename is used.

```
hostname(config)# tftp-server inside 10.1.1.1 configs/config1
hostname(config)# configure net 10.2.2.2:
```

The following example overrides the server and the filename. The default path to the filename is /tftpboot/configs/config1. The /tftpboot/ part of the path is included by default when you do not lead the filename with a slash (/). Because you want to override this path, and the file is also in tftpboot, include the tftpboot path in the **configure net** command.

```
hostname(config)# tftp-server inside 10.1.1.1 configs/config1
hostname(config)# configure net 10.2.2.2:/tftpboot/oldconfigs/config1
```

The following example sets the server only in the **tftp-server** command. The **configure net** command specifies only the filename.

```
hostname(config)# tftp-server inside 10.1.1.1
hostname(config)# configure net :configs/config1
```

Related Commands

Command	Description
configure http	Merges a configuration file from the specified HTTP(S) URL with the running configuration.
configure memory	Merges the startup configuration with the running configuration.
show running-config	Shows the running configuration.
tftp-server	Sets a default TFTP server and path for use in other commands.
write net	Copies the running configuration to a TFTP server.

configure terminal

To configure the running configuration at the command line, use the **configure terminal** command in privileged EXEC mode.

configure terminal

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command enters global configuration mode, which lets you enter commands that change the configuration.

Examples

The following example enters global configuration mode:

```
hostname# configure terminal
hostname(config)#
```

Related Commands

Command	Description
clear configure	Clears the running configuration.
configure http	Merges a configuration file from the specified HTTP(S) URL with the running configuration.
configure memory	Merges the startup configuration with the running configuration.
configure net	Merges a configuration file from the specified TFTP URL with the running configuration.
show running-config	Shows the running configuration.

config-url

To identify the URL from which the system downloads the context configuration, use the **config-url** command in context configuration mode.

config-url *url*

Syntax Description

url	Sets the context configuration URL. All remote URLs must be accessible from the admin context. See the following URL syntax: • **disk0:/**[*path*/]*filename* For the ASA 5500 series, this URL indicates the internal flash memory. You can also use the **flash** command instead of the **disk0** command; they are aliased. • **disk1:/**[*path*/]*filename* For the ASA 5500 series, this URL indicates the external flash memory card. • **flash:/**[*path*/]*filename* This URL indicates the internal flash memory. • **ftp://**[*user*[**:***password*]@]*server*[:*port*]**/**[*path*/]*filename*[**;type=***xx*] The **type** can be one of the following keywords: – **ap**—ASCII passive mode – **an**—ASCII normal mode – **ip**—(Default) Binary passive mode – **in**—Binary normal mode • **http**[**s**]**://**[*user*[**:***password*]@]*server*[:*port*]**/**[*path*/]*filename* • **tftp://**[*user*[**:***password*]@]*server*[:*port*]**/**[*path*/]*filename*[**;int=***interface_name*] Specify the interface name if you want to override the route to the server address.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Context configuration	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

When you add a context URL, the system immediately loads the context so that it is running.

Note Enter the **allocate-interface** command(s) before you enter the **config-url** command. The ASA must assign interfaces to the context before it loads the context configuration; the context configuration might include commands that refer to interfaces (**interface**, **nat**, **global**). If you enter the **config-url** command first, the ASA loads the context configuration immediately. If the context contains any commands that refer to interfaces, those commands fail.

The filename does not require a file extension, although we recommend using ".cfg."

The admin context file must be stored on the internal flash memory.

If you download a context configuration from an HTTP or HTTPS server, you cannot save changes back to these servers using the **copy running-config startup-config** command. You can, however, use the **copy tftp** command to copy the running configuration to a TFTP server.

If the system cannot retrieve the context configuration file because the server is unavailable, or the file does not yet exist, the system creates a blank context that is ready for you to configure with the command-line interface.

To change the URL, reenter the **config-url** command with a new URL.

The ASA merges the new configuration with the current running configuration. Reentering the same URL also merges the saved configuration with the running configuration. A merge adds any new commands from the new configuration to the running configuration. If the configurations are the same, no changes occur. If commands conflict or if commands affect the running of the context, then the effect of the merge depends on the command. You might get errors, or you might have unexpected results. If the running configuration is blank (for example, if the server was unavailable and the configuration was never downloaded), then the new configuration is used. If you do not want to merge the configurations, you can clear the running configuration, which disrupts any communications through the context, and then reload the configuration from the new URL.

Examples

The following example sets the admin context to "administrator," creates a context called "administrator" on the internal flash memory, and then adds two contexts from an FTP server:

```
hostname(config)# admin-context administrator
hostname(config)# context administrator
hostname(config-ctx)# allocate-interface gigabitethernet0/0.1
hostname(config-ctx)# allocate-interface gigabitethernet0/1.1
hostname(config-ctx)# config-url flash:/admin.cfg

hostname(config-ctx)# context test
hostname(config-ctx)# allocate-interface gigabitethernet0/0.100 int1
hostname(config-ctx)# allocate-interface gigabitethernet0/0.102 int2
hostname(config-ctx)# allocate-interface gigabitethernet0/0.110-gigabitethernet0/0.115
int3-int8
hostname(config-ctx)# config-url ftp://user1:passw0rd@10.1.1.1/configlets/test.cfg

hostname(config-ctx)# context sample
hostname(config-ctx)# allocate-interface gigabitethernet0/1.200 int1
hostname(config-ctx)# allocate-interface gigabitethernet0/1.212 int2
```

```
hostname(config-ctx)# allocate-interface gigabitethernet0/1.230-gigabitethernet0/1.235
int3-int8
hostname(config-ctx)# config-url ftp://user1:passw0rd@10.1.1.1/configlets/sample.cfg
```

Related Commands

Command	Description
allocate-interface	Allocates interfaces to a context.
context	Creates a security context in the system configuration and enters context configuration mode.
show context	Shows a list of contexts (system execution space) or information about the current context.

conn-rebalance

To enable connection rebalancing between members of a cluster, use the **conn-rebalance** command in cluster group configuration mode. To disable connection rebalancing, use the **no** form of this command.

conn-rebalance [**frequency** *seconds*]

no conn-rebalance [**frequency** *seconds*]

Syntax Description

frequency *seconds*	(Optional) Sepcifies how often the load information is exchanged, between 1 and 360 seconds. The default is 5 seconds.

Command Default

Connection rebalancing is disabled by default.

If enabled, the default frequency is 5 seconds

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Cluster group configuration	•	•	•	—	•

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

If the load balancing capabilities of the upstream or downstream routers result in unbalanced flow distribution, you can configure overloaded units to redirect new flows to other units. No existing flows will be moved to other units. If enabled, ASAs exchange load information periodically, and offload new connections from more loaded devices to less loaded devices.

This command is not part of the bootstrap configuration, and is replicated from the master unit to the slave units.

Examples

The following example sets the connection rebalance frequency to 60 seconds:

```
hostname(cfg-cluster)# conn-rebalance frequency 60
```

Related Commands

Command	Description
clacp system-mac	When using spanned EtherChannels, the ASA uses cLACP to negotiate the EtherChannel with the neighbor switch.
cluster group	Names the cluster and enters cluster configuration mode.
cluster-interface	Specifies the cluster control link interface.
cluster interface-mode	Sets the cluster interface mode.
console-replicate	Enables console replication from slave units to the master unit.
enable (cluster group)	Enables clustering.
health-check	Enables the cluster health check feature, which includes unit health monitoring and interface health monitoring.
key	Sets an authentication key for control traffic on the cluster control link.
local-unit	Names the cluster member.
mtu cluster-interface	Specifies the maximum transmission unit for the cluster control link interface.
priority (cluster group)	Sets the priority of this unit for master unit elections.

console timeout

To set the inactivity timeout for an authenticated serial console session (**aaa authentication serial console**) so that a user is logged out of the console after the timeout, or for an authenticated enable session (**aaa authentication enable console**) where the user exits privileged EXEC mode and reverts to user EXEC mode after the timeout, use the **console timeout** command in global configuration mode. To disable the inactivity timeout for an authenticated serial console session, use the **no** form of this command.

console timeout [*number*]

no console timeout [*number*]

Syntax Description

number	Specifies the idle time in minutes (0 through 60) after which the console session ends. 0 means the console never times out.

Defaults

The default timeout is 0, which means the console session will not time out.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **console timeout** command only applies to authenticated serial or enable connections. This command does not alter the Telnet, SSH, or HTTP timeouts; these access methods maintain their own timeout values. The command does not affect unauthenticated console connections.

The **no console timeout** command resets the console timeout value to the default timeout of 0, which means that the console will not time out.

Examples

The following example shows how to set the console timeout to 15 minutes:

```
hostname(config)# console timeout 15
```

Related Commands

Command	Description
clear configure console	Restores the default console connection settings.
clear configure timeout	Restores the default idle time durations in the configuration.
show running-config console timeout	Displays the idle timeout for a console connection to the ASA.

console-replicate

To enable console replication from slave units to the master unit in an ASA cluster, use the **console-replicate** command in cluster group configuration mode. To disable console replication, use the **no** form of this command.

console-replicate

no console-replicate

Syntax Description

This command has no arguments or keywords.

Command Default

Console replication is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Cluster group configuration	•	•	•	—	•

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

The ASA prints out some messages directly to the console for certain critical events. If you enable console replication, slave units send the console messages to the master unit so you only need to monitor one console port for the cluster.

This command is not part of the bootstrap configuration, and is replicated from the master unit to the slave units.

Examples

The following example enables console replication:

```
hostname(config)# cluster group cluster1
hostname(cfg-cluster)# console-replicate
```

Related Commands

Command	Description
clacp system-mac	When using spanned EtherChannels, the ASA uses cLACP to negotiate the EtherChannel with the neighbor switch.
cluster group	Names the cluster and enters cluster configuration mode.

Command	Description
cluster-interface	Specifies the cluster control link interface.
cluster interface-mode	Sets the cluster interface mode.
conn-rebalance	Enables connection rebalancing.
enable (cluster group)	Enables clustering.
health-check	Enables the cluster health check feature, which includes unit health monitoring and interface health monitoring.
key	Sets an authentication key for control traffic on the cluster control link.
local-unit	Names the cluster member.
mtu cluster-interface	Specifies the maximum transmission unit for the cluster control link interface.
priority (cluster group)	Sets the priority of this unit for master unit elections.

content-length

To restrict HTTP traffic based on the length of the HTTP message body, use the **content-length** command in http-map configuration mode. To remove this command, use the **no** form of this command.

content-length { **min** *bytes* [**max** *bytes*] | **max** *bytes*] } **action** {**allow** | **reset** | **drop**} [**log**]

no content-length { **min** *bytes* [**max** *bytes*] | **max** *bytes*] } **action** {**allow** | **reset** | **drop**} [**log**]

Syntax Description

action	Specifies the action taken when a message fails this inspection.
allow	Allows the message.
bytes	Specifies the number of bytes. The permitted range is 1 to 65535 for the **min** option and 1 to 50000000 for the **max** option.
drop	Closes the connection.
log	(Optional) Generates a syslog.
max	(Optional) Specifies the maximum content length allowed.
min	Specifies the minimum content length allowed.
reset	Sends a TCP reset message to the client and server.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Http-map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

After enabling the **content-length** command, the ASA only allows messages within the configured range and otherwise takes the specified action. Use the **action** keyword to cause the ASA to reset the TCP connection and create a syslog entry.

Examples

The following example restricts HTTP traffic to messages 100 bytes or larger and not exceeding 2000 bytes. If a message is outside this range, the ASA resets the TCP connection and creates a syslog entry.

```
hostname(config)# http-map inbound_http
hostname(config-http-map)# content-length min 100 max 2000 action reset log
hostname(config-http-map)# exit
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
http-map	Defines an HTTP map for configuring enhanced HTTP inspection.
debug appfw	Displays detailed information about traffic associated with enhanced HTTP inspection.
inspect http	Applies a specific HTTP map to use for application inspection.
policy-map	Associates a class map with specific security actions.

context

To create a security context in the system configuration and enter context configuration mode, use the **context** command in global configuration mode. To remove a context, use the **no** form of this command.

context *name*

no context *name* [**noconfirm**]

Syntax Description

name	Sets the name as a string up to 32 characters long. This name is case sensitive, so you can have two contexts named "customerA" and "CustomerA," for example. You can use letters, digits, or hyphens, but you cannot start or end the name with a hyphen. "System" or "Null" (in upper or lower case letters) are reserved names, and cannot be used.
noconfirm	(Optional) Removes the context without prompting you for confirmation. This option is useful for automated scripts.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

In context configuration mode, you can identify the configuration file URL and interfaces that a context can use. If you do not have an admin context (for example, if you clear the configuration), then the first context you add must be the admin context. To add an admin context, see the **admin-context** command. After you specify the admin context, you can enter the **context** command to configure the admin context.

You can only remove a context by editing the system configuration. You cannot remove the current admin context using the **no** form of this command; you can only remove it if you remove all contexts using the **clear configure context** command.

Examples

The following example sets the admin context to "administrator," creates a context called "administrator" on the internal flash memory, and then adds two contexts from an FTP server:

```
hostname(config)# admin-context administrator
hostname(config)# context administrator
hostname(config-ctx)# allocate-interface gigabitethernet0/0.1
hostname(config-ctx)# allocate-interface gigabitethernet0/1.1
hostname(config-ctx)# config-url flash:/admin.cfg

hostname(config-ctx)# context test
hostname(config-ctx)# allocate-interface gigabitethernet0/0.100 int1
hostname(config-ctx)# allocate-interface gigabitethernet0/0.102 int2
hostname(config-ctx)# allocate-interface gigabitethernet0/0.110-gigabitethernet0/0.115
int3-int8
hostname(config-ctx)# config-url ftp://user1:passw0rd@10.1.1.1/configlets/test.cfg

hostname(config-ctx)# context sample
hostname(config-ctx)# allocate-interface gigabitethernet0/1.200 int1
hostname(config-ctx)# allocate-interface gigabitethernet0/1.212 int2
hostname(config-ctx)# allocate-interface gigabitethernet0/1.230-gigabitethernet0/1.235
int3-int8
hostname(config-ctx)# config-url ftp://user1:passw0rd@10.1.1.1/configlets/sample.cfg
```

Related Commands

Command	Description
allocate-interface	Assigns interfaces to a context.
changeto	Changes between contexts and the system execution space.
config-url	Specifies the location of the context configuration.
join-failover-group	Assigns a context to a failover group.
show context	Shows context information.

copy

To copy a file from one location to another, use the **copy** command in privileged EXEC mode.

[**cluster exec**] **copy** [**/noconfirm** | **/pcap**] {*url* | **running-config** | **startup-config**} {**running-config** | **startup-config** | *url*}

Syntax Description

cluster exec	(Optional) Enables you to enter the **copy** command on one unit and then simultaneously apply it to all other units in a clustering deployment. (See the "Usage Guidelines" section for more information.)
/noconfirm	Copies the file without a confirmation prompt.
/pcap	Specifies the preconfigured TFTP server defaults. See the **tftp-server** command to configure a default TFTP server.
running-config	Specifies the running configuration stored in memory.
startup-config	Specifies the startup configuration stored in flash memory. The startup configuration for single mode or for the system in multiple context mode is a hidden file in flash memory. From within a context, the location of the startup configuration is specified by the **config-url** command. For example, if you specify an HTTP server for the **config-url** command and then enter the **copy startup-config running-config** command, the ASA copies the startup configuration from the HTTP server using the admin context interface.

url	Specifies the source or destination file to be copied between local and remote locations. (You cannot copy from a remote server to another remote server.) In a context, you can copy the running or startup configuration to a TFTP or FTP server using the context interfaces, but you cannot copy from a server to the running or startup configuration. See the **startup-config** keyword for other options. To download from a TFTP server to the running context configuration, use the **configure net** command. Use the following URL syntax for this command: • **cache:/**[*path*/]*filename*]—Indicates the cache memory in the file system. • **capture:/**[*path*/]*filename*]—Indicates the output in the capture buffer. • **disk0:/**[*path*/]*filename*] or **flash:/**[*path*/]*filename*]—ASA 5500 series only. Both **flash** and **disk0** indicate the internal flash memory. Can use either option. • **disk1:/**[*path*/]*filename*]—ASA 5500 series only. Indicates external memory. • **smb:/**[*path*/]*filename*]—Indicates a UNIX server local file system. Use Server Message Block file-system protocol in LAN managers and similar network systems to package data and exchange information with other systems. • **ftp://**[*user*[**:***password*]@]*server*[:*port*]**/**[*path*/]*filename*[**;type=***xx*]—The **type** can be one of these keywords: **ap** (ASCII passive mode), **an** (ASCII normal mode), **ip** (Default—Binary passive mode), **in** (Binary normal mode). • **http**[**s**]**://**[*user*[**:***password*]@]*server*[**:***port*]**/**[*path*/]*filename*] • **system:/**[*path*/]*filename*]—Indicates the system memory in the file system. • **tftp://**[*user*[**:***password*]@]*server*[**:***port*]**/**[*path*/]*filename*[**;int=***interface_name*] The pathname cannot contain spaces. If a pathname has spaces, set the path in the **tftp-server** command instead of in the **copy tftp** command. Specify the interface name using the **nameif interface** command if you want to override the route to the server address.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	Added support for DNS names.
8.0(2)	Added the **smb:** URL option.
9.0(1)	Added the **cluster exec** option.

Usage Guidelines

- When you copy a configuration to the running configuration, you merge the two configurations. A merge adds any new commands from the new configuration to the running configuration. If the configurations are the same, no changes occur. If commands conflict or if commands affect the running of the context, then the effect of the merge depends on the command. You might get errors, or you might have unexpected results.
  If an RSA key cannot be saved in NVRAM, the following error message appears:

  ```
  ERROR: NV RAM does not have enough space to save keypair keypair name
  ```

- After you have performed a cluster-wide capture, you can simultaneously copy the same capture file from all units in the cluster to a TFTP server by entering the following command on the master unit:

  ```
  hostname (config-cluster)# cluster exec copy /pcap capture: cap_name
  tftp://location/path/filename.pcap
  ```

  Multiple PCAP files, one from each unit, are copied to the TFTP server. The destination capture file name is automatically attached with the unit name, such as filename_A.pcap, filename_B.pcap, where A and B are cluster unit names.

  Note A different destination name gets generated if you add the unit name at the end of the filename.

Examples

The following example shows how to copy a file from the disk to a TFTP server in the system execution space:

```
hostname(config)# copy disk0:my_context/my_context.cfg
tftp://10.7.0.80/my_context/my_context.cfg
```

The following example shows how to copy a file from one location on the disk to another location on the disk. The name of the destination file can be either the name of the source file or a different name.

```
hostname(config)# copy disk0:my_context.cfg disk:my_context/my_context.cfg
```

The following example shows how to copy an ASDM file from a TFTP server to the internal flash memory:

```
hostname(config)# copy tftp://10.7.0.80/asdm700.bin disk0:asdm700.bin
```

The following example shows how to copy the running configuration in a context to a TFTP server:

```
hostname(config)# copy running-config tftp://10.7.0.80/my_context/my_context.cfg
```

The **copy** command supports DNS names as well as IP addresses, as shown in this version of the preceding example:

```
hostname(config)# copy running-config tftp://www.example.com/my_context/my_context.cfg
```

Related Commands

Command	Description
configure net	Copies a file from a TFTP server to the running configuration.
copy capture	Copies a capture file to a TFTP server.
tftp-server	Sets the default TFTP server.
write memory	Saves the running configuration to the startup configuration.
write net	Copies the running configuration to a TFTP server.

copy capture

To copy a capture file to a server, use the **copy capture** command in privileged EXEC mode.

copy [**/noconfirm**] [**/pcap**] **capture:** [*context_name/*]*buffer_name url*

Syntax Description

/noconfirm	Copies the file without a confirmation prompt.
/pcap	Copies the packet capture as raw data.
buffer_name	Unique name that identifies the capture.
context_name/	Copies a packet capture defined in a security context.
url	Specifies the destination to copy the packet capture file. See the following URL syntax: • **disk0:/**[*path/*]*filename* This option is only available for the ASA, and indicates the internal Flash card. You can also use **flash** instead of **disk0**; they are aliased. • **disk1:/**[*path/*]*filename* This option is only available for the ASA, and indicates the external Flash card. • **flash:/**[*path/*]*filename* This option indicates the internal flash card. For the ASA, **flash** is an alias for **disk0**. • **ftp://**[*user*[**:***password*]@]*server*[:*port*]**/**[*path/*]*filename*[**;type=***xx*] The **type** can be one of the following keywords: – **ap**—ASCII passive mode – **an**—ASCII normal mode – **ip**—(Default) Binary passive mode – **in**—Binary normal mode • **http**[**s**]**://**[*user*[**:***password*]@]*server*[**:***port*]**/**[*path/*]*filename* • **tftp://**[*user*[**:***password*]@]*server*[**:***port*]**/**[*path/*]*filename*[**;int=***interface_name*] Specify the interface name if you want to override the route to the server address. The pathname cannot contain spaces. If a pathname has spaces, set the path in the **tftp-server** command instead of in the **copy tftp** command.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows the prompts that are provided when you enter the **copy capture** command without specifying the full path:

```
hostname(config)# copy capture:abc tftp
Address or name of remote host [209.165.200.224]?
Source file name [username/cdisk]?
copying capture to tftp://209.165.200.224/username/cdisk:
[yes|no|again]? y
!!!!!!!!!!!!!
```

You can specify the full path as follows:

```
hostname(config)# copy capture:abc tftp:209.165.200.224/tftpboot/abc.cap
```

If the TFTP server is already configured, the location or filename can be unspecified as follows:

```
hostname(config)# tftp-server outside 209.165.200.224 tftp/cdisk
hostname(config)# copy capture:abc tftp:/tftp/abc.cap
```

Related Commands

Command	Description
capture	Enables packet capture capabilities for packet sniffing and network fault isolation.
clear capture	Clears the capture buffer.
show capture	Displays the capture configuration when no options are specified.

cpu profile activate

To start CPU profiling, use the **cpu profile activate** command in privileged EXEC mode.

cpu profile activate *n-samples* [**sample-process** *process-name*] [**trigger cpu-usage** *cpu %* [*process-name*]]

Syntax Description

n-samples	Allocates memory for storing *n* number of samples. Valid values are from 1 to 100,000.
sample-process *process-name*	Samples only a specific process.
trigger cpu-usage *cpu %*	Prevents the profiler from starting until the global 5-second CPU percentage is greater and stops the profiler if the CPU percentage drops below this value.
trigger cpu-usage *cpu % process-name*	Uses the process 5-second CPU percentage as a trigger.

Defaults

The *n-samples* default value is 1000.

The *cpu %* default value is 0.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.
9.1(2)	The **sample-process** *process-name*, **trigger cpu-usage** *cpu %*, and **trigger cpu-usage** *cpu % process-name* options were added. The output format was updated.

Usage Guidelines

The CPU profiler can help you determine which process is using more CPU. Profiling the CPU captures the address of the process that was running on the CPU when the timer interrupt fired. This profiling occurs every 10 milliseconds, regardless of the CPU load. For example, if you take 5000 samples, the profiling takes exactly 50 seconds to complete. If the amount of CPU time that the CPU profiler uses is relatively low, the samples take longer to collect. The CPU profile records are sampled in a separate buffer.

Use the **show cpu profile** command in conjunction with the **cpu profile activate** command to display information that you can collect and that the TAC can use for troubleshooting CPU issues. The **show cpu profile dump** command output is in hexadecimal format.

If the CPU profiler is waiting for a starting condition to occur, the **show cpu profile** command displays the following output:

```
CPU profiling started: 12:45:57.209 UTC Wed Nov 14 2012
CPU Profiling waiting on starting condition.
Core 0: 0 out of 10 samples collected.
Core 1: 0 out of 10 samples collected.
Core 2: 0 out of 10 samples collected.
Core 3: 0 out of 10 samples collected.
CP
0 out of 10 samples collected.
```

Examples

The following example activates the profiler and instructs it to store 1000 samples.

```
hostname# cpu profile activate
Activated CPU profiling for 1000 samples.
Use "show cpu profile" to display the progress or "show cpu profile dump" to interrupt
profiling and display the incomplete results.
```

The following examples show the status of the profiing (in-progress and completed):

```
hostname# show cpu profile
CPU profiling started: 13:45:10.400 PST Fri Nov 16 2012
CPU profiling currently in progress:
Core 0: 209 out of 1000 samples collected.
Use "show cpu profile dump" to see the results after it is complete or to interrupt
profiling and display the incomplete results.

hostname# show cpu profile dump
Cisco Adaptive Security Appliance Software Version 9.1(2)
Hardware:   ASA5555
CPU profiling started: 09:13:32.079 UTC Wed Jan 30 2013
No CPU profiling process specified.
No CPU profiling trigger specified.
cores: 2

Process virtual address map:
---------------------------
…
---------------------------
End of process map
Samples for core 0 - stopped
{0x00000000007eadb6,0x000000000211ee7e} ...
```

Related Commands

Command	Description
show cpu profile	Displays the CPU profiling progress.
show cpu profile dump	Displays incomplete or completed results for profiling.

coredump enable

To enable the coredump feature, enter the **coredump enable** command. To disable the command, use the **no** form of this command.

coredump enable [**filesystem** [**disk0**: | **disk1**: | **flash**:] [**size** [**default** | **size_in_MB**]]

[**no**] **coredump enable** [**filesystem** [**disk0**: | **disk1**: | **flash**:] [**size** [**default** | **size_in_MB**]]

Syntax Description

default	Specifies the default is the suggested value to use, because the ASA calculates what this value should be.
filesystem disk0: | disk1: | flash:	Specifies the disk where the coredump file will be saved.
size	Defines the total size allocated for the coredump file system image on the ASA flash. When configuring coredump, if not enough space is available, an error message appears. It may be helpful to think of the **size** option as a container, which means that coredumps generated will never be allowed to exceed this size in disk space consumption.
size_in_MB	Specifies that the ASA will override the default value and allocate the specified value in MB for the coredump filesystem (if the space is available).

Defaults

By default, coredumps are not enabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	—	—	•

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

Enabling this feature provides significant troubleshooting information. Disabling this feature results in a coredump file not being generated on a system crash for all components. In addition, disabling this feature does not delete a previous coredump filesystem image and/or the coredump filesystem image contents. When you enable coredumps, you are prompted to allow the coredump filesystem to be created. The prompt is a confirmation and includes the size (in MB) of the coredump filesystem to be created. It is important that you save your configuration after enabling or disabling coredumps.

When coredumps are enabled, the following file elements get created. You should never manipulate these file elements explicitly.

- coredumpfsys – Directory that includes coredump images
- coredumpfsysimage.bin – Coredump filesystem image used to manage coredumps
- coredumpinfo – Directory that includes the coredump log

Note Disabling coredumps has no effect on crashinfo file generation.

Cisco TAC may request that you enable the coredump feature to troubleshoot application or system crashes on the ASA.

Note Make sure that you archive the coredump files, because it is possible a subsequent coredump may result in previous coredump(s) being removed to fit the current coredump. Coredump files are located on the configured filesystem (for example, "disk0:/coredumpfsys" or "disk1:/coredumpfsys") and can be removed from the ASA.

To enable coredump, perform the following steps:

1. Make sure that you are in the /root directory. To verify your directory location on the console, enter the **pwd** command.
2. If necessary, change the directory by entering either the **cd disk0:/**, **cd disk1:/**, or **cd flash:/** command.
3. Enter the **coredump enable** command.

When using the **coredump** command to troubleshoot crashes on the ASA, it is possible that no coredump file is saved after a crash. This can occur when the coredump feature has been enabled and a coredump filesystem with preallocated disk space has been created. This condition usually appears while troubleshooting crashes that occur after a few weeks on busy ASAs that have allocated a large amount of RAM.

In the output of the **show coredump** command, something similar to the following appears:

```
Coredump Aborted as the complete coredump could not be written to flash
   Filesystem full on 'disk0', current coredump size <size> bytes too big for allocated
   filesystem
```

To alleviate this issue, you need to have a coredump filesystem card that is large enough to contain the full memory and allocate corresponding space to the coredump filesystem.

Examples

Each bang (!) in these examples represents 1 MB of the coredump filesystem being written.

The following example uses default values and **disk0:** to create the coredump filesystem.

```
hostname(config)# coredump enable
Warning: Enabling coredump on an ASA5505 platform will delay the reload of the system in
the event of software forced reload. The exact time depends on the size of the coredump
generated.
Proceed with coredump filesystem allocation of 60 MB on 'disk0:' (Note this may take a
while) [confirm]
Making coredump file system
image!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
```

The following example shows how to specify the filesystem and size by creating a 120-MB coredump filesystem on **disk1:**

```
hostname(config)# coredump enable filesystem disk1: size 120
WARNING: Enabling coredump on an ASA5540 platform will delay
the reload of the system in the event of software forced reload.
The exact time depends on the size of the coredump generated.
Proceed with coredump filesystem allocation of 120 MB
on 'disk1:' (Note this may take a while) ? [confirm]
Making coredump file system image
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
```

The following example shows how to resize the coredump filesystem from 120 MB to 100 MB:

Note The contents of the 120-MB coredump filesystem are not preserved, so make sure that you archive previous coredumps before doing this.

```
hostname(config)# coredump enable filesystem disk1: size 100
WARNING: Enabling coredump on an ASA5540 platform will delay
the reload of the system in the event of software forced reload.
The exact time depends on the size of the coredump generated.
Proceeding with resizing to 100 MB results in
deletion of current 120 MB coredump filesystem and
its contents on 'disk1:', proceed ? [confirm]
Making coredump file system
image!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!
```

The following example enables coredump initially on **disk0:**, then on **disk1:**. Also note the use of the **default** keyword.

Note We do not allow two active coredump filesystems, so you must delete the previous coredump filesystem before proceeding.

```
hostname(config)# coredump enable filesystem disk1: size default
WARNING: Enabling coredump on an ASA5540 platform will delay
the reload of the system in the event of software forced reload.
The exact time depends on the size of the coredump generated.
Coredump is currently configured on 'disk0:', upon successful
configuration on 'disk1:', the coredump filesystem will be
deleted on 'disk0:', proceed ? [confirm]
Proceed with coredump filesystem allocation of 100 MB
on 'disk1:' (Note this may take a while) ? [confirm]
Making coredump file system
image!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!
```

The following example shows how to disable the coredump filesystem. However, the current coredump filesystem image and its contents are not affected.

```
hostname(config)# no coredump enable
```

To reenable coredumps, reenter the command you originally used to configure the coredump filesystem.

The following examples disable and reenable coredumps:

- Using default values:

```
hostname(config)# coredump enable
```

```
hostname(config)# no coredump enable
hostname(config)# coredump enable
```

- Using explicit values:

```
hostname(config)# coredump enable filesystem disk1: size 200
hostname(config)# no coredump enable
hostname(config)# coredump enable filesystem disk1: size 200
```

Related Commands

Command	Description
clear configure coredump	Removes the coredump filesystem and its contents from your system. Also clears the coredump log.
clear coredump	Removes any coredumps currently stored on the coredump filesystem and clears the coredump log.
show coredump filesystem	Displays files on the coredump filesystem and indicates how full it might be.
show coredump log	Shows the coredump log.

crashinfo console disable

To suppress crash information from being output to the console, use the **crashinfo console disable** command in global configuration mode.

crashinfo console disable

no crashinfo console disable

Syntax Description

disable	Suppresses console output in the event of a crash.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.0(4)	This command was introduced.

Usage Guidelines

This command lets you suppress crash information from being output to the console. The crash information may contain sensitive information that is not appropriate for viewing by all users connected to the device. In conjunction with this command, you should also ensure crash information is written to flash, which can be examined after the device reboots. This command affects output for crash information and checkheaps, which is saved to flash and should be sufficient for troubleshooting.

Examples

The following example shows how to suppress crash information from being output to the console:

```
hostname(config)# crashinfo console disable
```

Related Commands

Command	Description
clear configure fips	Clears the system or module FIPS configuration information stored in NVRAM.
fips enable	Enables or disables policy checking to enforce FIPS compliance on the system or module.
fips self-test poweron	Executes power-on self-tests.

Command	Description
show crashinfo console	Reads, writes, and configures crash information output to flash.
show running-config fips	Displays the FIPS configuration that is running on the ASA.

crashinfo force

To force the ASA to crash, use the **crashinfo force** command in privileged EXEC mode.

crashinfo force [**page-fault** | **watchdog**]

Syntax Description

page-fault	(Optional) Forces a crash of the ASA as a result of a page fault.
watchdog	(Optional) Forces a crash of the ASA as a result of watchdogging.

Defaults

The ASA saves the crash information file to flash memory by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You can use the **crashinfo force** command to test the crash output generation. In the crash output, there is nothing that differentiates a real crash from a crash resulting from the **crashinfo force page-fault** or **crashinfo force watchdog** command (because these are real crashes). The ASA reloads after the crash dump is complete.

Caution Do not use the **crashinfo force** command in a production environment. The **crashinfo force** command crashes the ASA and forces it to reload.

Examples

The following example shows the warning that displays when you enter the **crashinfo force page-fault** command:

```
hostname# crashinfo force page-fault
WARNING: This command will force the XXX to crash and reboot.
    Do you wish to proceed? [confirm]:
```

If you enter a carriage return (by pressing the Return or Enter key on your keyboard), “Y,” or “y,” the ASA crashes and reloads; any of these responses are interpreted as confirmation. Any other character is interpreted as a no, and the ASA returns to the command-line prompt.

Related Commands

clear crashinfo	Clears the contents of the crash information file.
crashinfo save disable	Disables crash information from writing to flash memory.
crashinfo test	Tests the ability of the ASA to save crash information to a file in flash memory.
show crashinfo	Displays the contents of the crash information file.

crashinfo save disable

To disable crash information from writing to flash memory, use the **crashinfo save** command in global configuration mode. To allow the crash information to be written to flash memory and return to the default behavior, use the **no** form of this command.

crashinfo save disable

no crashinfo save disable

Syntax Description

This command has no arguments or keywords.

Defaults

The ASA saves the crash information file to flash memory by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	The **crashinfo save enable** command was deprecated. Use the **no crashinfo save disable** command instead.

Usage Guidelines

Crash information writes to flash memory first, and then to the console.

Note If the ASA crashes during startup, the crash information file is not saved. The ASA must be fully initialized and running first before it can save crash information to flash memory.

Use the **no crashinfo save disable** command to reenable saving the crash information to flash memory.

Examples

The following example shows how to disable crash information from writing to flash memory:

```
hostname(config)# crashinfo save disable
```

Related Commands

clear crashinfo	Clears the contents of the crash file.
crashinfo force	Forces a crash of the ASA.

crashinfo test	Tests the ability of the ASA to save crash information to a file in flash memory.
show crashinfo	Displays the contents of the crash file.

crashinfo test

To test the ability of the ASA to save crash information to a file in flash memory, use the **crashinfo test** command in privileged EXEC mode.

crashinfo test

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

If a previous crash information file already exists in flash memory, that file is overwritten.

Note Entering the **crashinfo test** command does not crash the ASA.

Examples

The following example shows the output of a crash information file test.:

```
hostname# crashinfo test
```

Related Commands

clear crashinfo	Deletes the contents of the crash file.
crashinfo force	Forces the ASA to crash.
crashinfo save disable	Disables crash information from writing to flash memory.
show crashinfo	Displays the contents of the crash file.

crl

To specify CRL configuration options, use the **crl** command in crypto ca trustpoint configuration mode.

crl {**required** | **optional** | **nocheck**}

Syntax Description

nocheck	Directs the ASA not to perform CRL checking.
optional	The ASA can still accept the peer certificate if the required CRL is not available.
required	The required CRL must be available for a peer certificate to be validated.

Defaults

The default value is **nocheck**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Crypto ca trustpoint configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	This command was deprecated. The following forms of the **revocation-check** command replace it. • **revocation-check crl none** replaces **crl optional** • **revocation-check crl** replaces **crl required** • **revocation-check none** replaces **crl nocheck**

Examples

The following example enters crypto ca trustpoint configuration mode for a trustpoint central, and requires that a CRL be available for a peer certificate to be validated for this trustpoint:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# crl required
hostname(ca-trustpoint)#
```

Related Commands

Command	Description
clear configure crypto ca trustpoint	Removes all trustpoints.
crypto ca trustpoint	Enters crypto ca trustpoint configuration mode.

Command	Description
crl configure	Enters crl configuration mode.
url	Specifies a URL for the CRL retrieval.

crl cache-time

To configure the amount of time (minutes) that a trustpool CRL can remain in the CRL cache before the ASA refreshes it, use the **crl cache-time** command in ca-trustpool configuration mode. To accept the default value of 60 minutes, use the **no** form of this command.

crl cache-time

no crl cache-time

Syntax Description

cache-time	Value in minutes (1-1440).

Defaults

The default value is **60**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Ca-trustpool configuration	•	•	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

This command is consistent with the version of this command supported in the trustpoint configuration mode.

Examples

```
hostname(ca-trustpool)# crl cache-time 30
```

Related Commands

Command	Description
crl enforcenextupdate	Specifies how to handle the NextUpdate CRL field.

crl configure

To enter CRL configuration mode, use the **crl configure** command in crypto ca trustpoint configuration mode.

crl configure

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Crypto ca trustpoint configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example enters crl configuration mode for a trustpoint central:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# crl configure
hostname(ca-crl)#
```

crl enforcenextupdate

To specify how to handle the NextUpdate CRL field, use the **crl enforcenextupdate** command in ca-trustpool configuration mode. If enabled, CRLs are required to have a NextUpdate field that has not yet lapsed. To not enforce this restriction, use the **no** form of this command:

crl enforcenextupdate

no crl enforcenextupdate

Syntax Description

This command has no arguments or keywords.

Defaults

The default is enabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ca-trustpool configuration	•	•	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

If enabled, CRLs are required to have a NextUpdate field that has not yet elapsed. This command is consistent with the version of this command supported in the trustpoint configuration mode.

Related Commands

Command	Description
crl cache-time	Configures how long a CRL can remain in the CRL cache before ASA refreshes it.

CHAPTER 11

crypto am-disable through crypto ipsec ikev1 transform-set mode transport Commands

crypto am-disable

To disable IPsec IKEv1 inbound aggressive mode connections, use the **crypto ikev1 am-disable** command in global configuration mode. To enable inbound aggressive mode connections, use the **no** form of this command.

crypto ikev1 am-disable

no crypto ikev1 am-disable

Syntax Description

This command has no arguments or keywords.

Defaults

The default value is enabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	The **isakmp am-disable** command was introduced.
7.2.(1)	The **crypto isakmp am-disable** command replaces the **isakmp am-disable** command**.**
8.4(1)	The command name was changed from **crypto isakmp am-disable** to **crypto ikev1 am-disable**.

Examples

The following example, entered in global configuration mode, disables inbound aggressive mode connections:

```
hostname(config)# crypto ikev1 am-disable
```

Related Commands

Command	Description
clear configure crypto isakmp	Clears the ISAKMP configuration.
clear configure crypto isakmp policy	Clears the ISAKMP policy configuration.
clear crypto isakmp sa	Clears the IKE runtime SA database.
show running-config crypto isakmp	Displays the active configuration.

crypto ca authenticate

To install and authenticate the CA certificates associated with a trustpoint, use the **crypto ca authenticate** command in global configuration mode. To remove the CA certificate, use the **no** form of this command.

crypto ca authenticate *trustpoint* [**fingerprint** *hexvalue*] [**nointeractive]**

no crypto ca authenticate *trustpoint*

Syntax Description

fingerprint	Specifies a hash value consisting of alphanumeric characters that the ASA uses to authenticate the CA certificate. If a fingerprint is provided, the ASA compares it to the computed fingerprint of the CA certificate and accepts the certificate only if the two values match. If there is no fingerprint, the ASA displays the computed fingerprint and asks whether to accept the certificate.
hexvalue	Identifies the hexadecimal value of the fingerprint.
nointeractive	Obtains the CA certificate for this trustpoint using no interactive mode; intended for use by the device manager only. In this case, if there is no fingerprint, the ASA accepts the certificate without question.
trustpoint	Specifies the trustpoint from which to obtain the CA certificate. The maximum name length is 128 characters.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced

Usage Guidelines

If the trustpoint is configured for SCEP enrollment, the CA certificate is downloaded through SCEP. If not, the ASA prompts you to paste the base-64 formatted CA certificate into the terminal.

The invocations of this command do not become part of the running configuration.

Examples

The following example shows the ASA requesting the certificate of the CA. The CA sends its certificate and the ASA prompts the administrator to verify the certificate of the CA by checking the CA certificate fingerprint. The ASA administrator should verify the fingerprint value displayed with a known, correct value. If the fingerprint displayed by the ASA matches the correct value, you should accept the certificate as valid.

```
hostname(config)# crypto ca authenticate myca
Certificate has the following attributes:
Fingerprint: 0123 4567 89AB CDEF 0123
Do you accept this certificate? [yes/no] y#
hostname(config)#
```

The following example shows the trustpoint tp9 configured for terminal-based (manual) enrollment. The ASA prompts the administrator to paste the CA certificate into the terminal. After displaying the fingerprint of the certificate, the ASA prompts the administrator to confirm that the certificate should be retained.

```
hostname(config)# crypto ca authenticate tp9
Enter the base 64 encoded CA certificate.
End with a blank line or the word "quit" on a line by itself

MIIDjjCCAvegAwIBAgIQejIaQ3SJRIBMHcvDdgOsKTANBgkqhkiG9w0BAQUFADBA
MQswCQYDVQQGEwJVUzELMAkGA1UECBMCTUExETAPBgNVBAcTCEZyYW5rbGluMREw
DwYDVQQDEwhCcmlhbnNDQTAeFw0wMjEwMTcxODE5MTJaFw0wNjEwMjQxOTU3MDha
MEAxCzAJBgNVBAYTAlVTMQswCQYDVQQIEwJNQTERMA8GA1UEBxMIRnJhbmtsaW4x
ETAPBgNVBAMTCEJyaWFuc0NBMIGfMA0GCSqGSIb3DQEBAQUAA4GNADCBiQKBgQCd
jXEPvNnkZD1bKzahbTHuRot1T8KRUbCP5aWKfqViKJENzI2GnAheArazsAcc4Eaz
LDnpuyyqa0j5LA3MI577MoN1/nll018fbpqOf9eVDPJDkYTvtZ/X3vJgnEjTOWyz
T0pXxhdU1b/jgqVE74OvKBzU7A2yoQ2hMYzwVbGkewIDAQABo4IBhzCCAYMwEwYJ
KwYBBAGCNxQCBAYeBABDAEEwCwYDVR0PBAQDAgFGMA8GA1UdEwEB/wQFMAMBAf8w
HQYDVR0OBBYEFBHr3holowFDmniI3FBwKpSEucdtMIIBGwYDVR0fBIIBEjCCAQ4w
gcaggcOggcCGgb1sZGFwOi8vL0NOPUJyaWFuc0NBLENOPWJyaWFuLXcyay1zdnIs
Q049Q0RQLENOPVB1YmxpYyUyMEtleSUyMFNlcnZpY2VzLENOPVNlcnZpY2VzLENO
PUNvbmZpZ3VyYXRpb24sREM9YnJpYW5wZGMsREM9YmRzLERDPWNvbT9jZXJ0aWZp
Y2F0ZVJldm9jYXRpb25MaXN0P2Jhc2U/b2JqZWN0Y2xhc3M9Y1JMRGlzdHJpYnV0
aW9uUG9pbnQwQ6BBoD+GPWh0dHA6Ly9icmlhbi13Mmstc3ZyLmJyaWFucGRjLmJk
cy5jb20vQ2VydEVucm9sbC9CcmlhbnNDQS5jcmwwEAYJKwYBBAGCNxUBBAMCAQEw
DQYJKoZIhvcNAQEFBQADgYEAdLhc4Za3AbMjRq66xH1qJWxKUzd4nE9wOrhGgA1r
j4B/Hv2K1gUie34xGqu9OpwqvJgp/vCU12Ciykb1YdSDy/PxN4KtR9Xd1JDQMbu5
f20AYqCG5vpPWavCgmgTLcdwKa3ps1YSWGkhWmScHHSiGg1a3tevYVwhHNPA4mWo
7sQ=

Certificate has the following attributes:
Fingerprint: 21B598D5 4A81F3E5 0B24D12E 3F89C2E4
% Do you accept this certificate? [yes/no]: yes
Trustpoint CA certificate accepted.
% Certificate successfully imported
hostname(config)#
```

Related Commands

Command	Description
crypto ca enroll	Starts enrollment with a CA.
crypto ca import certificate	Installs a certificate received from a CA in response to a manual enrollment request.
crypto ca trustpoint	Enters crypto ca trustpoint configuration mode for the indicated trustpoint.

crypto ca certificate chain

To enter certificate chain configuration mode for the indicated trustpoint, use the **crypto ca certificate chain** command in global configuration mode.

crypto ca certificate chain *trustpoint*

Syntax Description

trustpoint	Specifies the trustpoint for configuring the certificate chain.

Defaults

No default values or behaviors.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example enters certificate chain configuration mode for the trustpoint, central:

```
hostname(config)# crypto ca certificate chain central
hostname(config-cert-chain)#
```

Related Commands

Command	Description
clear configure crypto ca trustpoint	Removes all trustpoints.

crypto ca certificate map

To maintain a prioritized list of certificate mapping rules, use the **crypto ca certificate map** command in global configuration mode. To remove a crypto CA configuration map rule, use the **no** form of the command.

crypto ca certificate map {*sequence-number* | *map-name sequence-number*}

no crypto ca certificate map {*sequence-number* | *map-name* [*sequence-number*]}

Syntax Description

map-name	Specifies a name for a certificate-to-group map.
sequence-number	Specifies a number for the certificate map rule that you are creating. The range is 1 through 65535. You can use this number when creating a tunnel group map, which maps a tunnel group to a certificate map rule.

Defaults

The default value for *map-name* is DefaultCertificateMap.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	Added the *map-name* option.

Usage Guidelines

Entering this command places the ASA in ca certificate map configuration mode, where you can configure rules based on the issuer and subject distinguished names (DNs) of the certificate. The sequence number orders the mapping rules. The general form of these rules is as follows:

- *DN match-criteria match-value*
- *DN* is either *subject-name* or *issuer-name*. DNs are defined in the ITU-T X.509 standard.
- *match-criteria* comprise the following expressions or operators:

attr *tag*	Limits the comparison to a specific DN attribute, such as common name (CN).
co	Contains
eq	Equal
nc	Does not contain
ne	Not equal

The DN matching expressions are case insensitive.

Examples

The following example enters ca certificate map mode with a map named example-map and a sequence number of 1 (rule # 1), and specifies that the common name (CN) attribute of the subject-name must match Example1:

```
hostname(config)# crypto ca certificate map example-map 1
hostname(ca-certificate-map)# subject-name attr cn eq Example1
hostname(ca-certificate-map)#
```

The following example enters ca certificate map mode with a map named example-map and a sequence number of 1, and specifies that the subject-name contain the value cisco anywhere within it:

```
hostname(config)# crypto ca certificate map example-map 1
hostname(ca-certificate-map)# subject-name co cisco
hostname(ca-certificate-map)#
```

Related Commands

Command	Description
issuer-name	Indicates that rule entry is applied to the issuer DN of the IPsec peer certificate.
subject-name (crypto ca certificate map)	Indicates that rule entry is applied to the subject DN of the IPsec peer certificate.
tunnel-group-map enable	Associates the certificate map entries created using the **crypto ca certificate map** command with tunnel groups.

crypto ca crl request

To request a CRL based on the configuration parameters of the specified trustpoint, use the **crypto ca crl request** command in crypto ca trustpoint configuration mode.

crypto ca crl request *trustpoint*

Syntax Description

trustpoint	Specifies the trustpoint. The maximum number of characters allowed is 128.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Crypto ca trustpoint configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Invocations of this command do not become part of the running configuration.

Examples

The following example requests a CRL based on the trustpoint named central:

```
hostname(config)# crypto ca crl request central
hostname(config)#
```

Related Commands

Command	Description
crl configure	Enters crl configuration mode.

crypto ca enroll

To start the enrollment process with the CA, use the **crypto ca enroll** command in global configuration mode.

crypto ca enroll *trustpoint* [**noconfirm**]

Syntax Description

noconfirm	(Optional) Suppresses all prompts. Enrollment options that might have been prompted for must be preconfigured in the trustpoint. This option is for use in scripts, ASDM, or other noninteractive needs.
trustpoint	Specifies the name of the trustpoint to enroll with. The maximum number of characters allowed is 128.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

When the trustpoint is configured for SCEP enrollment, the ASA displays a CLI prompt immediately and status messages appear on the console asynchronously. When the trustpoint is configured for manual enrollment, the ASA writes a base-64-encoded PKCS10 certificate request to the console and then the CLI prompt appears.

This command generates interactive prompts that vary, depending on the configured state of the referenced trustpoint. For this command to run successfully, the trustpoint must have been configured correctly.

Examples

The following example requests enrollment for an identity certificate with trustpoint tp1 using SCEP enrollment. The ASA prompts for information not stored in the trustpoint configuration.

```
hostname(config)# crypto ca enroll tp1
%
% Start certificate enrollment ..
% Create a challenge password. You will need to verbally provide this
% password to the CA Administrator in order to revoke your certificate.
% For security reasons your password will not be saved in the configuration.
% Please make a note of it.
Password:
```

```
Re-enter password:
% The fully-qualified domain name in the certificate will be: xyz.example.com
% The subject name in the certificate will be: xyz.example.com
% Include the router serial number in the subject name? [yes/no]: no
% Include an IP address in the subject name? [no]: no
Request certificate from CA [yes/no]: yes
% Certificate request sent to Certificate authority.
% The certificate request fingerprint will be displayed.
% The 'show crypto ca certificate' command will also show the fingerprint.

hostname(config)#
```

The following example shows manual enrollment of a CA certificate:

```
hostname(config)# crypto ca enroll tp1

% Start certificate enrollment ..
% The fully-qualified domain name in the certificate will be: xyz.example.com
% The subject name in the certificate will be: wb-2600-3.example.com
if serial number not set in trustpoint, prompt:
% Include the router serial number in the subject name? [yes/no]: no
If ip-address not configured in trustpoint:
% Include an IP address in the subject name? [no]: yes
Enter Interface name or IP Address[]: 1.2.3.4
Display Certificate Request to terminal? [yes/no]: y
Certificate Request follows:
MIIBFTCBwAIBADA6MTgwFAYJKoZIhvcNAQkIEwcxLjIuMy40MCAGCSqGSIb3DQEJ
AhYTd2ItMjYwMC0zLmNpc2NvLmNvbTBcMA0GCSqGSIb3DQEBAQUAA0sAMEgCQQDT
IdvHa4D5wXZ+40sKQV7Uek1E+CC6hm/LRN3p5ULW1KF6bxhA3Q5CQfh4jDxobn+A
Y8GoeceulS2Zb+mvgNvjAgMBAAGgITAfBgkqhkiG9w0BCQ4xEjAQMA4GA1UdDwEB
/wQEAwIFoDANBgkqhkiG9w0BAQQFAANBACDhnrEGBVtltG7hp8x6Wz/dgY+ouWcA
lzy7QpdGhb1du2P81RYn+8pWRA43cikXMTeM4ykEkZhLjDUgv9t+R9c=

---End - This line not part of the certificate request---

Redisplay enrollment request? [yes/no]: no
hostname(config)#
```

Related Commands

Command	Description
crypto ca authenticate	Obtains the CA certificate for this trustpoint.
crypto ca import pkcs12	Installs a certificate received from a CA in response to a manual enrollment request.
crypto ca trustpoint	Enters crypto ca trustpoint configuration mode for the indicated trustpoint.

crypto ca export

To export the ASA trustpoint configuration with all associated keys and certificates in PKCS12 format, or to export the device identity certificate in PEM format, use the **crypto ca export** command in global configuration mode.

crypto ca export *trustpoint* **identity-certificate**

Syntax Description

identity-certificate	Specifies that the enrolled certificate associated with the named trustpoint is to be displayed on the console.
trustpoint	Specifies the name of the trustpoint whose certificate is to be displayed. The maximum number of characters allowed for a trustpoint name is 128.

Defaults

No default values or behaviors.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.0(2)	This command was changed to accommodate certificate exporting in PEM format.

Usage Guidelines

Invocations of this command do not become part of the active configuration. The PEM or PKCS12 data is written to the console.

Web browsers use the PKCS12 format to store private keys with accompanying public key certificates protected with a password-based symmetric key. The ASA exports the certificates and keys associated with a trustpoint in base64-encoded PKCS12 format. This feature can be used to move certificates and keys between ASAs.

PEM encoding of a certificate is a base64 encoding of an X.509 certificate enclosed by PEM headers. This encoding provides a standard method for text-based transfer of certificates between ASAs. PEM encoding can be used to export the *proxy-ldc-issuer* certificate using an SSL/TLS protocol proxy when the ASA is acting as a client.

Examples

The following example exports the PEM-formatted certificate for trustpoint 222 as a console display:

```
hostname (config)# crypto ca export 222 identity-certificate
```

```
Exported 222 follows:
-----BEGIN CERTIFICATE-----
MIIGDzCCBXigAwIBAgIKFiUgwwAAAAAFPDANBgkqhkiG9w0BAQUFADCBnTEfMB0G
CSqGSIb3DQEJARYQd2Jyb3duQGNpc2NvLmNvbTELMAkGA1UEBhMCVVMxCzAJBgNV
BAgTAk1BMREwDwYDVQQHEwhGcmFua2xpbjEWMBQGA1UEChMNQ2lzY28gU3lzdGVt
czEZMBcGA1UECxMQRnJhbmtsaW4gRGV2VGVzdDEaMBgGA1UEAxMRbXMtcm9vdC1j
YS01LTIwMDQwHhcNMDYxMTAyMjIyNjU3WhcNMjQwNTIwMTMzNDUyWjA2MRQwEgYD
VQQFEwtKTVgwOTQwSzA0TDEeMBwGCSqGSIb3DQEJAhMPQnJpYW4uY2lzY28uY29t
MIGfMA0GCSqGSIb3DQEBAQUAA4GNADCBiQKBgQCvxxIYKcrb7cJpsiFKwwsQUph5
4M5Y3CDVKEVF+98HrD6rhd0n/d6R8VYSfu76aeJC5j9Bbn3xOCx2aY5K2enf3SBW
Y66S3JeZBV88etFmyYJ7rebjUVVQZaFcq79EjoP99IeJ3a89Y7dKvYqq8I3hmYRe
uipm1G6wfKHOrpLZnwIDAQABo4IDujCCA7YwCwYDVR0PBAQDAgWgMBoGA1UdEQQT
MBGCD0JyaWFuLmNpc2NvLmNvbTAdBgNVHQ4EFgQUocM/JeVV3fjZh4wDe0JS74Jm
pvEwgdkGA1UdIwSB0TCBzoAUYZ8t0+V9pox+Y47NtCLk7WxvIQShgaOkgaAwgZ0x
HzAdBgkqhkiG9w0BCQEWEHdicm93bkBjaXNjby5jb20xCzAJBgNVBAYTAlVTMQsw
CQYDVQQIEwJNQTERMA8GA1UEBxMIRnJhbmtsaW4xFjAUBgNVBAoTDUNpc2NvIFN5
c3RlbXMxGTAXBgNVBAsTEEZyYW5rbGluIERldlRlc3QxGjAYBgNVBAMTEW1zLXJv
b3QtY2EtNS0yMDA0ghBaZ5s0Ng4SskMxF2NlIoxgMIIBSAYDVR0fBIIBPzCCATsw
geuggeiggeWGgeJsZGFwOi8vd2luMmstYWQuRlJLLU1TLVBLSS5jaXNjby5jb20v
Q049bXMtcm9vdC1jYS01LTIwMDQsQ049d2luMmstYWQsQ049Q0RQLENOPVB1Ymxp
YyUyMEtleSUyMFNlcnZpY2VzLENOPVNlcnZpY2VzLENOPUNvbmZpZ3VyYXRpb24s
REM9RlJLLU1TLVBLSSxEQz1jaXNjbyxEQz1jb20/Y2VydGlmaWNhdGVSZXZvY2F0
aW9uTGlzdD9iYXNlP29iamVjdGNsYXNzPWNSTERpc3RyaWJ1dGlvblBvaW50MEug
SaBHhkVodHRwOi8vd2luMmstYWQuZnJrLW1zLXBraS5jaXNjby5jb20vQ2VydEVu
cm9sbC9tcy1yb290LWNhLTUtMjAwNC5jcmwwggFCBggrBgEFBQcBAQSCATQwggEw
MIG8BggrBgEFBQcwAoaBr2xkYXA6Ly8vQ049bXMtcm9vdC1jYS01LTIwMDQsQ049
QUlBLENOPVB1YmxpYyUyMEtleSUyMFNlcnZpY2VzLENOPVNlcnZpY2VzLENOPUNv
bmZpZ3VyYXRpb24sREM9RlJLLU1TLVBLSSxEQz1jaXNjbyxEQz1jb20/Y0FDZXJ0
aWZpY2F0ZT9iYXNlP29iamVjdGNsYXNzPWNlcnRpZmljYXRpb25BdXRob3JpdHkw
bwYIKwYBBQUHMAKGY2h0dHA6Ly93aW4yay1hZC5mcmstbXMtcGtpLmNpc2NvLmNv
bS9DZXJ0RW5yb2xsL3dpbjJrLWFkLkZSSy1NUy1QS0kuY2lzY28uY29tX21zLXJv
b3QtY2EtNS0yMDA0LmNydDANBgkqhkiG9w0BAQUFAAOBgQBlh7maRutcKNpjPbLk
bdcafJfHQ3k4UoWo0s1A0LXzdF4SsBIKQmpbfqEHtlx4EsfvfHXxUQJ6TOab7axt
hxMbNX3m7giebvtPkreqR9OYWGUjZwFUZ16TWnPA/NP3fbqRSsPgOXkC7+/5oUJd
eAeJOF4RQ6fPpXw9LjO5GXSFQA==
-----END CERTIFICATE-----
hostname (config)#
```

Related Commands

Command	Description
crypto ca authenticate	Obtains the CA certificate for this trustpoint.
crypto ca enroll	Starts enrollment with a CA.
crypto ca import	Installs a certificate received from a CA in response to a manual enrollment request.
crypto ca trustpoint	Enters crypto ca trustpoint configuration mode for the indicated trustpoint.

crypto ca import

To install a certificate received from a CA in response to a manual enrollment request or to import the certificate and key pair for a trustpoint using PKCS12 data, use the **crypto ca import** command in global configuration mode.

crypto ca import *trustpoint* **certificate** [**nointeractive**]

crypto ca import *trustpoint* **pkcs12** *passphrase* [**nointeractive**]

Syntax Description

certificate	Tells the ASA to import a certificate from the CA represented by the trustpoint.
nointeractive	(Optional) Imports a certificate using nointeractive mode, which suppresses all prompts. This option is for use in scripts, ASDM, or other noninteractive needs.
passphrase	Specifies the passphrase used to decrypt the PKCS12 data.
pkcs12	Tells the ASA to import a certificate and key pair for a trustpoint, using PKCS12 format.
trustpoint	Specifies the trustpoint with which to associate the import action. The maximum number of characters allowed is 128. If you import PKCS12 data and the trustpoint uses RSA keys, the imported key pair is assigned the same name as the trustpoint.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example manually imports a certificate for the trustpoint Main:

```
hostname (config)# crypto ca import Main certificate
% The fully-qualified domain name in the certificate will be:
securityappliance.example.com

Enter the base 64 encoded certificate.
End with a blank line or the word "quit" on a line by itself
[ certificate data omitted ]
quit
```

```
INFO: Certificate successfully imported
hostname (config)#
```

The following example manually imports PKCS12 data to a trustpoint central:

```
hostname (config)# crypto ca import central pkcs12

Enter the base 64 encoded pkcs12.
End with a blank line or the word "quit" on a line by itself:
[ PKCS12 data omitted ]
quit
INFO: Import PKCS12 operation completed successfully
hostname (config)#
```

The following example, entered in global configuration mode, generates a warning message because there is not enough space in NVRAM to save the RSA keypair:

```
hostname(config)# crypto ca import central pkcs12 mod 2048
INFO: The name for the keys will be: central
Keypair generation process begin. Please wait...
NV RAM will not have enough space to save keypair central. Remove any unnecessary keypairs
and save the running config before using this keypair.
hostname(config)#
```

Related Commands

Command	Description
crypto ca export	Exports a trustpoint certificate and key pair in PKCS12 format.
crypto ca authenticate	Obtains the CA certificate for a trustpoint.
crypto ca enroll	Starts enrollment with a CA.
crypto ca trustpoint	Enters the crypto ca trustpoint configuration mode for the indicated trustpoint.

crypto ca server

To set up and manage a local CA server on the ASA, use the **crypto ca server** command in global configuration mode. To delete the configured local CA server from the ASA, use the **no** form of this command.

crypto ca server

no crypto ca server

Syntax Description

This command has no arguments or keywords.

Defaults

A certificate authority server is not enabled on the ASA.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•		—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

There can only be one local CA on an ASA.

The **crypto ca server** command configures the CA server, but does not enable it. Use the **no** form of the **shutdown** command in ca server configuration mode to enable the local CA.

When you activate the CA server with the **no shutdown** command, you establish the RSA keypair of the CA and a trustpoint named LOCAL-CA-SERVER to hold the self-signed certificate. This newly generated self-signed certificate always has digital signature, CRL signing, and certificate signing key usage settings set.

Caution The **no crypto ca server** command deletes the configured local CA server, its RSA keypair, and the associated trustpoint, regardless of the current state of the local CA server.

Examples

The following example enters ca server configuration mode, then lists the local CA server commands available in that mode:

```
hostname(config)# crypto ca server
hostname(config-ca-server)# ?
```

```
CA Server configuration commands:
  cdp-url               CRL Distribution Point to be included in the issued
                        certificates
  database              Embedded Certificate Server database location
                        configuration
  enrollment-retrieval  Enrollment-retrieval timeout configuration
  exit                  Exit from Certificate Server entry mode
  help                  Help for crypto ca server configuration commands
  issuer-name           Issuer name
  keysize               Size of keypair in bits to generate for certificate
                        enrollments
  lifetime              Lifetime parameters
  no                    Negate a command or set its defaults
  otp                   One-Time Password configuration options
  renewal-reminder      Enrollment renewal-reminder time configuration
  shutdown              Shutdown the Embedded Certificate Server
  smtp                  SMTP settings for enrollment E-mail notifications
  subject-name-default  Subject name default configuration for issued
                        certificates
```

The following example uses the **no** form of the **crypto ca server** command in ca server configuration mode to delete the configured and enabled CA server from the ASA:

```
hostname(config-ca-server)# no crypto ca server

Certificate server 'remove server' event has been queued for processing.
hostname(config)#
```

Related Commands

Command	Description
debug crypto ca server	Shows debugging messages when you configure the local CA server.
show crypto ca server	Displays the status and parameters of the configured CA server.
show crypto ca server cert-db	Displays local CA server certificates.

crypto ca server crl issue

To force the issuance of a Certificate Revocation List (CRL), use the **crypto ca server crl issue** command in privileged EXEC mode.

crypto ca server crl issue

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ca server configuration	•	—	•		—
Global configuration	•	—	•		—
Privileged EXEC	•	—	•		—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Use this command to recover a lost CRL. Normally, the CRL is reissued automatically at expiration by resigning the existing CRL. The **crypto ca server crl issue** command regenerates the CRL based on the certificate database and should only be used as required to regenerate a CRL based on the certificate database contents.

Examples

The following example forces the issuance of a CRL by the local CA server:

```
hostname(config-ca-server)# crypto ca server crl issue
A new CRL has been issued.
hostname(config-ca-server)#
```

Related Commands

Command	Description
cdp-url	Specifies the certificate revocation list distribution point to be included in the certificates issued by the CA.
crypto ca server	Provides access to the ca server configuration mode command set, which allows you to configure and manage the local CA.

Command	Description
crypto ca server revoke	Marks a certificate issued by the local CA server as revoked in the certificate database and CRL.
show crypto ca server crl	Displays the current CRL of the local CA.

crypto ca server revoke

To mark a certificate issued by the local Certificate Authority (CA) server as revoked in the certificate database and the CRL, use the **crypto ca server revoke** command in privileged EXEC mode.

crypto ca server revoke *cert-serial-no*

Syntax Description

cert-serial-no	Specifies the serial number of the certificate to be revoked, which must be in hexadecimal format.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ca server configuration	•	—	•		—
Global configuration	•	—	•		—
Privileged EXEC	•	—	•		—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

You revoke a specific certificate that has been issued by the local CA on an ASA by entering the **crypto ca server revoke** command on that ASA. Revocation is accomplished when this command marks the certificate as revoked in the certificate database on the CA server and in the CRL. You specify the certificate to be revoked by entering the certificate serial number in hexadecimal format.

The CRL is regenerated automatically after the specified certificate is revoked.

Examples

The following example revokes the certificate with the serial number 782ea09f issued by the local CA server:

```
hostname(config-ca-server)## crypto ca server revoke 782ea09f
Certificate with the serial number 0x782ea09f has been revoked. A new CRL has been issued.
hostname(config-ca-server)#
```

Related Commands

Command	Description
crypto ca server crl issue	Forces the issuance of a CRL.
crypto ca server unrevoke	Unrevokes a revoked certificate issued by the local CA server.
crypto ca server user-db remove	Removes a user from the CA server user database.
show crypto ca server crl	Displays the current CRL of the local CA.
show crypto ca server user-db	Displays users included in the CA server user database.

crypto ca server unrevoke

To unrevoke a revoked certificate issued by the local CA server, use the **crypto ca server unrevoke** command in privileged EXEC mode.

crypto ca server unrevoke *cert-serial-no*

Syntax Description

cert-serial-no	Specifies the serial number of the certificate to be unrevoked, which must be in hexadecimal format.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ca server configuration	•	—	•		—
Global configuration	•	—	•		—
Privileged EXEC	•	—	•		—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

You unrevoke a revoked certificate issued by the local CA on an ASA by entering the **crypto ca server unrevoke** command. The validity of the certificate is restored when this command marks the certificate as valid in the certificate database and removes it from the CRL. You specify the certificate to be unrevoked by entering the certificate serial number in hexadecimal format.

The CRL is regenerated after the specified certificate is unrevoked.

Examples

The following example unrevokes the certificate with the serial number 782ea09f issued by the local CA server:

```
hostname(config-ca-server)# crypto ca server unrevoke 782ea09f
Certificate with the serial number 0x782ea09f has been unrevoked. A new CRL has been
issued.
hostname(config-ca-server)#
```

Related Commands

Command	Description
crypto ca server	Provides access to the ca server configuration mode command set, which allows you to configure and manage the local CA.
crypto ca server crl issue	Forces the issuance of a CRL.
crypto ca server revoke	Marks a certificate issued by the local CA server as revoked in the certificate database and CRL.
crypto ca server user-db add	Adds a user to the CA server user database.
show crypto ca server cert-db	Displays local CA server certificates.
show crypto ca server user-db	Displays users included in the CA server user database.

crypto ca server user-db add

To insert a new user into the CA server user database, use the **crypto ca server user-db add** command in privileged EXEC mode.

crypto ca server user-db add *user* [**dn** *dn*] [**email** *e-mail-address*]

Syntax Description

dn *dn*	Specifies a subject-name distinguished name for certificates issued to the added user. If a DN string contains a comma, enclose the value string with double quotes (for example, O=”Company, Inc.”)
email *e-mail-address*	Specifies the e-mail address for the new user.
user	Specifies a single user to whom to grant enrollment privileges. The username can be a simple username or an e-mail address.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ca server configuration	•	—	•		—
Global configuration	•	—	•		—
Privileged EXEC	•	—	•		—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

The *user* argument can be a simple username such as user1 or an e-mail address such as user1@example.com. The *username* must match the username specified by the end user in the enrollment page.

The *username* is added to the database as a user without privileges. You must use the **crypto ca server allow** command to grant enrollment privileges.

The *username* argument, along with the one-time password, is used to enroll the user on the enrollment interface page.

Note For e-mail notification of the one-time password (OTP), an e-mail address should be specified either in the *username* or *email-address* argument. A missing e-mail address at mailing time generates an error.

The **email** *e-mail-address* keyword-argument pair is used only as an e-mail address to notify the user for enrollment and renewal reminders and does not appear in the issued certificate.

Inclusion of the e-mail address ensures that the user can be contacted with any questions and is notified of the required one-time password for enrollment.

If an optional DN is not specified for a user, the subject name DN is formed using the *username* and the subject-name-default DN setting as cn=*username*, subject-name-default.

Examples

The following example adds a user to the user database with a username of user1@example.com with a complete subject-name DN:

```
hostname(config-ca-server)# crypto ca server user-db add dn "cn=Jane Doe, ou=engineering,
o=Example, l=RTP, st=NC, c=US"
hostname(config-ca-server)#
```

The following example grants enrollment privileges to the user named user2.

```
hostname(config-ca-server)# crypto ca server user-db allow user2
hostname(config-ca-server)
```

Related Commands

Command	Description
crypto ca server	Provides access to the ca server configuration mode command set, which allows you to configure and manage a local CA.
crypto ca server user-db allow	Permits a specific user or a subset of users in the CA server database to enroll with the CA.
crypto ca server user-db remove	Deletes a user from the CA server database.
crypto ca server user-db write	Copies the user information in the CA server database to the file specified by the **database path** command.
database path	Specifies a path or location for the local CA database. The default location is flash memory.

crypto ca server user-db allow

To permit a user or a group of users to enroll in the local CA server database, use the **crypto ca server user-db allow** command in privileged EXEC mode. This command also includes options to generate and display one-time passwords or to e-mail them to users.

crypto ca server user-db allow {*username* | **all-unenrolled** | **all-certholders**} [**display-otp**] [**email-otp**] [**replace-otp**]

Syntax Description

all-certholders	Specifies that enrollment privileges be granted to all users in the database who have been issued a certificate, whether the certificate is valid or not. This is equivalent to granting renewal privileges.
all-unenrolled	Specifies that enrollment privileges be granted to all users in the database who have not been issued a certificate.
email-otp	(Optional) Sends the specified users one-time passwords by e-mail to their configured e-mail addresses.
replace-otp	(Optional) Specifies that one-time passwords be regenerated for all specified users who originally had valid one-time passwords.
display-otp	(Optional) Displays the one-time passwords for all specified users on the console.
username	Specifies a single user to whom to grant enrollment privileges. The username can be a simple username or e-mail address.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Ca server configuration	•	—	•		—
Global configuration	•	—	•		—
Privileged EXEC	•	—	•		—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

The **replace-otp** keyword generates OTPs for all specified users. These new OTPs replace any valid ones generated for the specified users.

The OTP is not stored on the ASA, but is generated and regenerated as required to notify a user or to authenticate a user during enrollment.

Examples

The following example grants enrollment privileges to all users in the database who have not enrolled yet:

```
hostname(config-ca-server)# crypto ca server user-db allow all-unenrolled
hostname(config-ca-server)#
```

The following example grants enrollment privileges to the user named user1:

```
hostname(config-ca-server)# crypto ca server user-db allow user1
hostname(config-ca-server)#
```

Related Commands

Command	Description
crypto ca server	Provides access to the ca server configuration mode command set, which allows you to configure and manage a local CA.
crypto ca server user-db add	Adds a user to the CA server user database.
crypto ca server user-db write	Copies the user information in the CA server database to the file specified by the **database path** command.
enrollment-retrieval	Specifies the time in hours that an enrolled user can retrieve a PKCS12 enrollment file.
show crypto ca server cert-db	Displays all certificates issued by the local CA.

crypto ca server user-db email-otp

To e-mail the OTP to a specific user or a subset of users in the local CA server database, use the **crypto ca server user-db email-otp** command in privileged EXEC mode.

crypto ca server user-db email-otp {*username* | **all-unenrolled** | **all-certholders**}

Syntax Description

all-certholders	Specifies that OTPs are e-mailed to all users in the database who have been issued a certificate, whether that certificate is valid or not.
all-unenrolled	Specifies that the OTPs are e-mailed to all users in the database who have never been issued a certificate, or who only hold expired or revoked certificate(s).
username	Specifies that the OTP for a single user is e-mailed to that user. The username can be a username or an e-mail address.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ca server configuration	•	—	•		—
Global configuration	•	—	•		—
Privileged EXEC	•	—	•		—

Command History

Release	Modification
8.0(2)	This command was introduced.

Examples

The following example e-mails the OTP to all unenrolled users in the database:

```
hostname(config-ca-server)# crypto ca server user-db email-otp all-unenrolled
hostname(config-ca-server)#
```

The following example e-mails the OTP to the user named user1:

```
hostname(config-ca-server)# crypto ca server user-db email-otp user1
hostname(config-ca-server)#
```

Related Commands

Command	Description
crypto ca server user-db show-otp	Displays the one-time password for a specific user or a subset of users in the CA server database.
show crypto ca server cert-db	Displays all certificates issued by the local CA.
show crypto ca server user-db	Displays users included in the CA server user database.

crypto ca server user-db remove

To remove a user from the local CA server user database, use the **crypto ca server user-db remove** command in privileged EXEC mode.

crypto ca server user-db remove *username*

Syntax Description

username	Specifies the name of the user to remove in the form of a username or an e-mail address.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
CA server configuration	•	—	•		—
Global configuration	•	—	•		—
Privileged EXEC	•	—	•		—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

This command removes a username from the CA user database so that user cannot enroll. The command also provideees the option to revoke previously issued, valid certificates.

Examples

The following example removes a user with a username, user1, from the CA server user database :

```
hostname(config-ca-server)# crypto ca server user-db remove user1

WARNING: No certificates have been automatically revoked. Certificates issued to user
user1 should be revoked if necessary.

hostname(config-ca-server)#
```

Related Commands

Command	Description
crypto ca server crl issue	Forces the issuance of a CRL.
crypto ca server revoke	Marks a certificate issued by the local CA server as revoked in the certificate database and CRL.

Command	Description
show crypto ca server user-db	Displays users included in the CA server user database.
crypto ca server user-db write	Writes the user information configured in the local CA database to the file specified by the **database path** command.

crypto ca server user-db show-otp

To display the OTP for a specific user or a subset of users in the local CA server database, use the **crypto ca server user-db show-otp** command in privileged EXEC mode.

crypto ca server user-db show-otp {*username* | **all-certholders** | **all-unenrolled**}

Syntax Description

all-certholders	Displays the OTPs for all users in the database who have been issued a certificate, whether the certificate is currently valid or not.
all-unenrolled	Displays the OTPs for all users in the database who have never been issued a certificate, or who only hold expired or revoked certificate(s).
username	Specifies that the OTP for a single user be displayed. The *username* can be a username or an e-mail address.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ca server configuration	•	—	•		—
Global configuration	•	—	•		—
Privileged EXEC	•	—	•		—

Command History

Release	Modification
8.0(2)	This command was introduced.

Examples

The following example displays the OTP for all users who have valid or invalid certificates in the database:

```
hostname(config-ca-server)# crypto ca server user-db show-otp all-certholders
hostname(config-ca-server)#
```

The following example displays the OTP for the user named user1:

```
hostname(config-ca-server)# crypto ca server user-db show-otp user1
hostname(config-ca-server)#
```

Related Commands

Command	Description
crypto ca server user-db add	Adds a user to the CA server user database.
crypto ca server user-db allow	Allows a specific user or a subset of users in the CA server database to enroll with the local CA.
crypto ca server user-db email-otp	E-mails the one-time password to a specific user or to a subset of users in the CA server database.
show crypto ca server cert-db	Displays all certificates issued by the local CA.

crypto ca server user-db write

To configure a directory location to store all the local CA database files, use the **crypto ca server user-db write** command in privileged EXEC mode.

crypto ca server user-db write

Syntax Description

This command has no keywords or arguments.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ca server configuration	•	—	•		—
Global configuration	•	—	•		—
Privileged EXEC	•	—	•		—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

The **crypto ca server user-db write** command is used to save new user-based configuration data to the storage specifed by the database path configuration. The information is generated when new users are added or allowed with the **crypto ca server user-db add** and **crypto ca server user-db allow** commands.

Examples

The following example writes the user information configured in the local CA database to storage:

```
hostname(config-ca-server)# crypto ca server user-db write
hostname(config-ca-server)#
```

Related Commands

Command	Description
crypto ca server user-db add	Adds a user to the CA server user database.
database path	Specifies a path or location for the local CA database. The default location is flash memory.

Command	Description
crypto ca server user-db remove	Removes a user from the CA server user database.
show crypto ca server cert-db	Displays all certificates issued by the local CA.
show crypto ca server user-db	Displays users included in the CA server user database.

crypto ca trustpoint

To enter the crypto ca trustpoint configuration mode for the specified trustpoint, use the **crypto ca trustpoint** command in global configuration mode. To remove the specified trustpoint, use the **no** form of this command.

crypto ca trustpoint *trustpoint-name*

no crypto ca trustpoint *trustpoint-name* [**noconfirm**]

Syntax Description

noconfirm	Suppresses all interactive prompting
ipsec	Indicates that IPsec client connections can be validated using this trustpoint.
ssl-client	Indicates that SSL client connections can be validated using this trustpoint.
trustpoint-name	Identifies the name of the trustpoint to manage. The maximum name length allowed is 128 characters.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	Added options to support the OCSP. These include **match certificate map**, **ocsp disable-nonce**, **ocsp url**, and **revocation-check**.
8.0(2)	Added options to support certificate validation. These include **id-usage** and **validation-policy.** The following are being deprecated: **accept-subordinates, id-cert-issuer**, and **support-user-cert-validation**.
8.0(4)	The **enrollment self** option was added to support enrollment of self-signed certificates between trusted enterprises, such as between phone proxy and TLS proxy.

Usage Guidelines

Use the **crypto ca trustpoint** command to declare a CA. Issuing this command puts you in crypto ca trustpoint configuration mode.

This command manages trustpoint information. A trustpoint represents a CA identity and possibly a device identity, based on a certificate issued by the CA. The commands within the trustpoint mode control CA-specific configuration parameters, which specify how the ASA obtains the CA certificate, how the ASA obtains its certificate from the CA, and the authentication policies for user certificates issued by the CA.

You can specify characteristics for the trustpoint using the following commands:

- **accept-subordinates**—Deprecated. Indicates whether CA certificates subordinate to the CA associated with the trustpoint are accepted if delivered during phase one IKE exchange when not previously installed on the ASA.
- **crl required | optional | nocheck**—Specifies CRL configuration options.
- **crl configure**—Enters crl configuration mode (see the **crl** command).
- **default enrollment**—Returns all enrollment parameters to their system default values. Invocations of this command do not become part of the active configuration.
- **email** *address*—During enrollment, asks the CA to include the specified email address in the subject alternative name extension of the certificate.
- **enrollment retry period** —Specifies a retry period in minutes for SCEP enrollment.
- **enrollment retry count**—Specifies a maximum number of permitted retries for SCEP enrollment.
- **enrollment terminal**—Specifies cut and paste enrollment with this trustpoint.
- **enrollment self**—Specifies enrollment that generates a self-signed certificate.
- **enrollment url** *url*—Specifies SCEP enrollment to enroll with this trustpoint and configures the enrollment URL (*url*).
- **exit**—Leaves the configuration mode.
- **fqdn** *fqdn*—During enrollment, asks the CA to include the specified FQDN in the subject alternative name extension of the certificate.
- **id-cert-issuer**—Deprecated. Indicates whether the system accepts peer certificates issued by the CA associated with this trustpoint.
- **id-usage**— Specifies how the enrolled identity of a trustpoint can be used.
- **ip-addr** *ip-address*—During enrollment, asks the CA to include the IP address of the ASA in the certificate.
- **keypair** *name*—Specifies the key pair whose public key is to be certified.
- **match certificate** *map-name* **override ocsp**—Matches a certificate map to an OCSP override rule.
- **ocsp disable-nonce**—Disables the nonce extension, which cryptographically binds revocation requests with responses to avoid replay attacks.
- **ocsp url**—Specifies that the OCSP server at this URL check all certificates associated with this trustpoint for revocation status.
- **exit**—Leaves the configuration mode.
- **password** *string*—Specifies a challenge phrase that is registered with the CA during enrollment. The CA typically uses this phrase to authenticate a subsequent revocation request.
- **revocation check**—Specifies the revocation checking method, which includes CRL, OCSP, and none.
- **serial-number**—During enrollment, asks the CA to include the ASA serial number in the certificate.

- **subject-name** *X.500 name*—During enrollment, asks the CA to include the specified subject DN in the certificate. If a DN string includes a comma, enclose the value string with double quotes (for example, O="Company, Inc.")
- **support-user-cert-validation**—Deprecated. If enabled, the configuration settings to validate a remote user certificate can be taken from this trustpoint, provided that it is authenticated to the CA that issued the remote certificate. This option applies to the configuration data associated with the subcommands **crl required | optional | nocheck** and all settings in the CRL mode.
- **validation-policy**—Specifies trustpoint conditions for validating certificates associated with user connections.

Note When you try to connect, a warning occurs to indicate that the trustpoint does not contain an ID certificate when an attempt is made to retrieve the ID certificate from the trustpoint.

Examples

The following example enters ca trustpoint configuration mode for managing a trustpoint named central:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)#
```

Related Commands

Command	Description
clear configure crypto ca trustpoint	Removes all trustpoints.
crypto ca authenticate	Obtains the CA certificate for this trustpoint.
crypto ca certificate map	Enters crypto ca certificate map configuration mode. Defines certificate-based ACLs.
crypto ca crl request	Requests a CRL based on configuration parameters of a specified trustpoint.
crypto ca import	Installs a certificate received from a CA in response to a manual enrollment request.

crypto ca trustpool export

To export the certificates that constitute the PKI trustpool, use the **crypto ca trustpool export** command in privileged EXEC configuration mode.

crypto ca trustpool export *filename*

Syntax Description

filename	The file in which to store the exported trustpool certificates.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC configuration	•	•	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

This command copies the entire contents of the active trustpool to the indicated filepath in pem-coded format.

Examples

```
hostname# crypto ca trustpool export disk0:/exportfile.pem
Trustpool certificates exported to disk0:/exportfile.pem
hostname#
hostname# more exportfile.pem
-----BEGIN CERTIFICATE-----
MIIEMjCCAxqgAwIBAgIBATANBgkqhkiG9w0BAQUFADB7MQswCQYDVQQGEwJHQjEb
MBkGA1UECAwSR3JlYXRlciBNYW5jaGVzdGVyMRAwDgYDVQQHDAdTYWxmb3JkMRow
GAYDVQQKDBFDb21vZG8gQ0EgTGltaXRlZDEhMB8GA1UEAwwYQUFBIENlcnRpZmlj
YXRlIFNlcnZpY2VzMB4XDTA0MDEwMTAwMDAwMFoXDTI4MTIzMTIzNTk1OVowezEL
MAkGA1UEBhMCR0IxGzAZBgNVBAgMEkdyZWF0ZXIgTWFuY2hlc3RlcjEQMA4GA1UE

<More>
```

Related Commands

Command	Description
crypto ca trustpool import	Imports the certificates that constitute the PKI trustpool.

crypto ca trustpool import

To import the certificates that constitute the PKI trustpool, use the **crypto ca trustpool import** command in global configuration mode.

crypto ca trustpool import [clean] url *url* [**noconfirm** [**signature-required**]]

crypto ca trustpool import [clean] default [noconfirm]

Syntax Description

clean	Removes all downloaded trustpool certificates prior to import.
default	Restores the ASA's default trusted CA list.
noconfirm	Suppresses all interactive prompts.
signature-required	Indicates that only signed files are accepted.
url	The location of the trustpool file to be imported.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

This command provides the ability to validate the signature on the file when a trustpool bundle is downloaded from cisco.com. A valid signature is not mandatory when downloading bundles from other sources or in a format that does not support signatures. Users are informed of the signature status and are given the option to accept the bundle or not.

The possible interactive warnings are:

- Cisco bundle format with invalid signature
- Non-cisco bundle format
- Cisco bundle format with valid signature

The **signature-required** keyword is allowed only if the **noconfirm** option is selected. If the **signature-required** keyword is included but the signature is not present or cannot be verified, the import fails.

Note Unless you have verified the legitimacy of the file through some other means, do not install the certificates if a file signature cannot be verified,

The following example shows the behavior of the **crypto ca trustpool** import command when suppressing interactive prompting and requiring signatures:

```
hostname(config)# crypto ca trustpool import url ?

configure mode commands/options:
disk0:   Import from disk0: file system
disk1:   Import from disk1: file system
flash:   Import from flash: file system
ftp:     Import from ftp: file system
http:    Import from http: file system
https:   Import from https: file system
smb:     Import from smb: file system
system:  Import from system: file system
tftp:    Import from tftp: file system

hostname(config)# crypto ca trustpool import url http://mycompany.com ?
exec mode commands/options:
noconfirm  Specify this keyword to suppress all interactive prompting.

hostname(config)# crypto ca trustpool import url http://mycompany.com  noconfirm ?
exec mode commands/options:
signature-required  Indicate that only signed files will be accepted
```

Related Commands

Command	Description
crypto ca trustpool export	Exports the certificates that constitute the PKI trustpool.

crypto ca trustpool policy

To enter a submode that provides the commands that define the trustpool policy, use the **crypto ca trustpool policy** command in global configuration mode.

crypto ca trustpool policy

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Examples

```
hostname(config)# crypto ca trustpool ?

configure mode commands/options:
policy Define trustpool policy

hostname(config)# crypto ca trustpool policy
hostname(config-ca-trustpool)# ?

CA Trustpool configuration commands:
crl               CRL options
exit              Exit from certificate authority trustpool entry mode
match             Match a certificate map
no                Negate a command or set its defaults
revocation-check  Revocation checking options
hostname(config-ca-trustpool)#
```

Related Commands

Command	Description
show crypto ca trustpool policy	Displays the configured trustpool policy.

crypto ca trustpool remove

To remove a single specified certificate from the PKI trustpool, use the **crypto ca trustpool remove** command in privileged EXEC configuration mode.

crypto ca trustpool remove *cert fingerprint* **[noconfirm]**

Syntax Description

cert fingerprint	Hex data.
noconfirm	Specify this keyword to suppress all interactive prompting.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC configuration	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Because this command will commit a change to the trusted root certificate content, interactive users will be prompted to confirm their actions.

Examples

```
hostname# crypto ca trustpool remove ?

  Hex-data  Certificate fingerprint
hostname# crypto ca trustpool remove 497904b0eb8719ac47b0bc11519b74d0 ?
noconfirm  Specify this keyword to suppress all interactive prompting.
```

Related Commands

Command	Description
clear crypto ca trustpool	Removes all certificates from the trustpool.
crypto ca trustpool export	Exports the certificates that constitute the PKI trustpool.
crypto ca trustpool import	Imports the certificates that constitute the PKI trustpool.

crypto dynamic-map match address

To match the address of an access list for the dynamic crypto map entry, use the **crypto dynamic-map match address** command in global configuration mode. To disable the address match, use the **no** form of this command.

crypto dynamic-map *dynamic-map-name dynamic-seq-num* **match address** *acl_name*

no crypto dynamic-map *dynamic-map-name dynamic-seq-num* **match address** *acl_name*

Syntax Description

acl-name	Identifies the access list to be matched for the dynamic crypto map entry.
dynamic-map-name	Specifies the name of the dynamic crypto map set.
dynamic-seq-num	Specifies the sequence number that corresponds to the dynamic crypto map entry.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

See the **crypto map match address** command for additional information about this command.

Examples

The following example shows the use of the **crypto dynamic-map** command to match address of an access list named aclist1:

```
hostname(config)# crypto dynamic-map mymap 10 match address aclist1
hostname(config)#
```

Related Commands

Command	Description
clear configure crypto dynamic-map	Clears all configuration for all the dynamic crypto maps.
show running-config crypto dynamic-map	Displays all configuration for all the dynamic crypto maps.

crypto dynamic-map set df-bit

To set the per-signature algorithm (SA) do-not-fragment (DF) policy, use the **crypto dynamic-map set df-bit** command in global configuration mode. To disable the DF policy, use the **no** form of this command.

crypto dynamic-map *name priority* **set df-bit** [**clear-df** | **copy-df** | **set-df**]

no crypto dynamic-map *name priority* **set df-bit** [**clear-df** | **copy-df** | **set-df**]

Syntax Description

name	Specifies the name of the crypto dynamic map set.
priority	Specifies the priority that you assign to the crypto dynamic map entry.

Defaults

The default setting is off.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

The original DF policy command is retained and acts as a global policy setting on an interface, but it is superseded for an SA by the **crypto map** command.

crypto dynamic-map set nat-t-disable

To disable NAT-T for connections based on this crypto map entry, use the **crypto dynamic-map set nat-t-disable** command in global configuration mode. To enable NAT-T for this crypto may entry, use the **no** form of this command.

crypto dynamic-map *dynamic-map-name dynamic-seq-num* **set nat-t-disable**

no crypto dynamic-map *dynamic-map-name dynamic-seq-num* **set nat-t-disable**

Syntax Description

dynamic-map-name	Specifies the name of the crypto dynamic map set.
dynamic-seq-num	Specifies the number that you assign to the crypto dynamic map entry.

Defaults

The default setting is off.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

Use the **isakmp nat-traversal** command to globally enable NAT-T. Then you can use the **crypto dynamic-map set nat-t-disable** command to disable NAT-T for specific crypto map entries.

Examples

The following command disables NAT-T for the crypto dynamic map named mymap:

```
hostname(config)# crypto dynamic-map mymap 10 set nat-t-disable
hostname(config)#
```

Related Commands

Command	Description
clear configure crypto dynamic-map	Clears all configuration for all the dynamic crypto maps.
show running-config crypto dynamic-map	Displays all configuration for all the dynamic crypto maps.

crypto dynamic-map set peer

See the **crypto map set peer** command for additional information about this command.

crypto dynamic-map *dynamic-map-name dynamic-seq-num* **set peer** *ip_address* | *hostname*

no crypto dynamic-map *dynamic-map-name dynamic-seq-num* **set peer** *ip_address* | *hostname*

Syntax Description

dynamic-map-name	Specifies the name of the dynamic crypto map set.
dynamic-seq-num	Specifies the sequence number that corresponds to the dynamic crypto map entry.
hostname	Identifies the peer in the dynamic crypto map entry by hostname, as defined by the **name** command.
ip_address	Identifies the peer in the dynamic crypto map entry by IP address, as defined by the **name** command.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Examples

The following example shows setting a peer for a dynamic-map named mymap to the IP address 10.0.0.1:

```
hostname(config)# crypto dynamic-map mymap 10 set peer 10.0.0.1
hostname(config)#
```

Related Commands

Command	Description
clear configure crypto dynamic-map	Clears all configuration for all the dynamic crypto maps.
show running-config crypto dynamic-map	Displays all configuration for all the dynamic crypto maps.

crypto dynamic-map set pfs

To specify the dynamic crypto map sets, use the **crypto map dynamic-map set pfs** command in global configuration mode. To remove the specified dynamic-map crypto map set, use the **no** form of this command.

See the **crypto map set pfs** command for additional information about this command.

crypto dynamic-map *dynamic-map-name dynamic-seq-num* **set pfs** [**group1 | group2 | group5**]

no crypto dynamic-map *dynamic-map-name dynamic-seq-num* **set pfs** [**group1 | group2 | group5**]

Syntax Description

dynamic-map-name	Specifies the name of the dynamic crypto map set.
dynamic-seq-num	Specifies the sequence number that corresponds to the dynamic crypto map entry.
group1	Specifies that IPsec should use the 768-bit Diffie-Hellman prime modulus group when performing the new Diffie-Hellman exchange.
group2	Specifies that IPsec should use the 1024-bit Diffie-Hellman prime modulus group when performing the new Diffie-Hellman exchange.
group5	Specifies that IPsec should use the 1536-bit Diffie-Hellman prime modulus group when performing the new Diffie-Hellman exchange.
set pfs	Configures IPsec to ask for perfect forward secrecy (PFS) when requesting new security associations for this dynamic crypto map entry or configures IPsec to require PFS when receiving requests for new security associations.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was modified to add Diffie-Hellman group 7.
8.0(4)	The **group 7** command option was deprecated. Attempts to configure group 7 will generate an error message and use group 5 instead.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

The **crypto dynamic-map** commands, such as **match address**, **set peer**, and **set pfs** are described with the **crypto map** commands. If the peer initiates the negotiation and the local configuration specifies PFS, the peer must perform a PFS exchange or the negotiation fails. If the local configuration does not specify a group, the ASA assumes a default of group2. If the local configuration does not specify PFS, it accepts any offer of PFS from the peer.

When interacting with the Cisco VPN Client, the ASA does not use the PFS value, but instead uses the value negotiated during Phase 1.

Examples

The following example specifies that PFS should be used whenever a new security association is negotiated for the crypto dynamic-map mymap 10. The group specified is group 2:

```
hostname(config)# crypto dynamic-map mymap 10 set pfs group2
hostname(config)#
```

Related Commands

Command	Description
clear configure crypto dynamic-map	Clears all configuration for all the dynamic crypto maps.
show running-config crypto dynamic-map	Displays all configuration for all the dynamic crypto maps.

crypto dynamic-map set reverse route

See the **crypto map set reverse-route** command for additional information about this command.

crypto dynamic-map *dynamic-map-name dynamic-seq-num* **set reverse route**

no crypto dynamic-map *dynamic-map-name dynamic-seq-num* **set reverse route**

Syntax Description

dynamic-map-name	Specifies the name of the crypto map set.
dynamic-seq-num	Specifies the number you assign to the crypto map entry.

Defaults

The default value for this command is off.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Examples

The following command enables Reverse Route Injection for the crypto dynamic map named mymap:

```
hostname(config)# crypto dynamic-map mymap 10 set reverse route
hostname(config)#
```

Related Commands

Command	Description
clear configure crypto dynamic-map	Clears all configuration for all the dynamic crypto maps.
show running-config crypto dynamic-map	Displays all configuration for all the dynamic crypto maps.

crypto dynamic-map set ikev1 transform-set

To specify the IKEv1 transform sets to use in a dynamic crypto map entry, use the **crypto dynamic-map set ikev1 transform-set** command in global configuration mode.

crypto dynamic-map *dynamic-map-name dynamic-seq-num* **set ikev1 transform-set** *transform-set-name1* [*… transform-set-name11*]

To remove the transform sets from the dynamic crypto map entry, specify the transform set name in the **no** form of this command:

no crypto dynamic-map *dynamic-map-name dynamic-seq-num* **set ikev1 transform-set** *transform-set-name1* [*… transform-set-name*11]

To remove the dynamic crypto map entry, use the **no** form of the command and specify all or none of the transform sets:

no crypto dynamic-map *dynamic-map-name dynamic-seq-num* **set ikev1 transform-set**

Syntax Description

dynamic-map-name	Specifies the name of the dynamic crypto map set.
dynamic-seq-num	Specifies the sequence number that corresponds to the dynamic crypto map entry.
transform-set-name1 *transform-set-name11*	Specifies one or more names of the transform sets. Any transform sets named in this command must be defined in the **crypto ipsec ikev1 transform-set** command. Each crypto map entry supports up to 11 transform sets.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0	This command was introduced.
7.2(1)	Changed the maximum number of transform sets in a crypto map entry.
8.4(1)	Added the **ikev1** keyword.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

A dynamic crypto map is a crypto map without all of the parameters configured. It acts as a policy template where the missing parameters are later dynamically learned, as the result of an IPsec negotiation, to match the peer requirements. The ASA applies a dynamic crypto map to let a peer negotiate a tunnel if its IP address is not already identified in a previous static or dynamic crypto map. This occurs with the following types of peers:

- Peers with dynamically assigned public IP addresses.

  Both LAN-to-LAN and remote access peers can use DHCP to obtain a public IP address. The ASA uses this address only to initiate the tunnel.

- Peers with dynamically assigned private IP addresses.

  Peers requesting remote access tunnels typically have private IP addresses assigned by the headend. Generally, LAN-to-LAN tunnels have a predetermined set of private networks that are used to configure static maps and therefore used to establish IPsec SAs.

As an administrator configuring static crypto maps, you might not know the IP addresses that are dynamically assigned (via DHCP or some other method), and you might not know the private IP addresses of other clients, regardless of how they were assigned. VPN clients typically do not have static IP addresses; they require a dynamic crypto map to allow IPsec negotiation to occur. For example, the headend assigns the IP address to a Cisco VPN client during IKE negotiation, which the client then uses to negotiate IPsec SAs.

Dynamic crypto maps can ease IPsec configuration and we recommend them for use in networks where the peers are not always predetermined. Use dynamic crypto maps for Cisco VPN clients (such as mobile users) and routers that obtain dynamically assigned IP addresses.

Tip Use care when using the **any** keyword in **permit** entries in dynamic crypto maps. If the traffic covered by such a **permit** entry could include multicast or broadcast traffic, insert **deny** entries for the appropriate address range into the access list. Remember to insert **deny** entries for network and subnet broadcast traffic, and for any other traffic that IPsec should not protect.

Dynamic crypto maps work only to negotiate SAs with remote peers that initiate the connection. The ASA cannot use dynamic crypto maps to initiate connections to a remote peer. With a dynamic crypto map configured, if the outbound traffic matches a permit entry in an access list and the corresponding SA does not yet exist, the ASA drops the traffic.

A crypto map set may include a dynamic crypto map. Dynamic crypto map sets should be the lowest priority crypto maps in the crypto map set (that is, they should have the highest sequence numbers) so that the ASA evaluates other crypto maps first. It examines the dynamic crypto map set only when the other (static) map entries do not match.

Similar to static crypto map sets, a dynamic crypto map set consists of all of the dynamic crypto maps with the same dynamic map name. The dynamic sequence number differentiates the dynamic crypto maps in a set. If you configure a dynamic crypto map, insert a permit ACL to identify the data flow of the IPsec peer for the crypto access list. Otherwise the ASA accepts any data flow identity the peer proposes.

Caution Do not assign static (default) routes for traffic to be tunneled to a ASA interface configured with a dynamic crypto map set. To identify the traffic that should be tunneled, add the ACLs to the dynamic crypto map. Use care to identify the proper address pools when configuring the ACLs associated with remote access tunnels. Use Reverse Route Injection to install routes only after the tunnel is up.

You can combine static and dynamic map entries within a single crypto map set.

Examples

The following example creates a dynamic crypto map entry named “dynamic0” consisting of the same ten transform sets.

```
hostname(config)# crypto dynamic-map dynamic0 1 set ikev1 transform-set 3des-md5 3des-sha
56des-md5 56des-sha 128aes-md5 128aes-sha 192aes-md5 192aes-sha 256aes-md5 256aes-sha
hostname(config)#
```

Related Commands

Command	Description
crypto ipsec ikev1 transform-set	Configures an IKEv1 transform set.
crypto map set transform-set	Specifies the transform sets to use in a crypto map entry.
clear configure crypto dynamic-map	Clears all dynamic crypto maps from the configuration.
show running-config crypto dynamic-map	Displays the dynamic crypto map configuration.
show running-config crypto map	Displays the crypto map configuration.

crypto dynamic-map set ikev2 ipsec-proposal

To specify the IPsec proposals for IKEv2 to use in a dynamic crypto map entry, use the **crypto dynamic-map set ikev2 ipsec-proposal** command in global configuration mode. To remove the names of the transform sets from a dynamic crypto map entry, use the **no** form of this command.

crypto dynamic-map *dynamic-map-name* **set ipsec-proposal** *transform-set-name1* [*… transform-set-name11*]

no crypto dynamic-map *dynamic-map-name* **set ipsec-proposal** *transform-set-name1* [*… transform-set-name11*]

Syntax Description

dynamic-map-name	Specifies the name of the dynamic crypto map set.
transform-set-name1 transform-set-name11	Specifies one or more names of the transform sets. Any transform sets named in this command must be defined in the **crypto ipsec ikev2 transform-set** command. Each crypto map entry supports up to 11 transform sets.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
8.4(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

crypto dynamic-map set ikev2 ipsec-proposal

To specify the IPsec proposals for IKEv2 to use in a dynamic crypto map entry, use the **crypto dynamic-map set ikev2 ipsec-proposal** command in global configuration mode. To remove the names of the transform sets from a dynamic crypto map entry, use the **no** form of this command.

crypto dynamic-map *dynamic-map-name* **set ipsec-proposal** *transform-set-name1* [*… transform-set-name11*]

no crypto dynamic-map *dynamic-map-name* **set ipsec-proposal** *transform-set-name1* [*… transform-set-name11*]

Syntax Description

dynamic-map-name	Specifies the name of the dynamic crypto map set.
transform-set-name1 *transform-set-name11*	Specifies one or more names of the transform sets. Any transform sets named in this command must be defined in the **crypto ipsec ikev2 transform-set** command. Each crypto map entry supports up to 11 transform sets.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
8.4(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

crypto dynamic-map set pfs

To set IPsec to ask for PFS when requesting new security associations for this dynamic crypto map entry or that IPsec requires PFS when receiving requests for new security associations, use the **crypto dynamic-map set pfs** command in global configuration mode. To specify that IPsec should not request PFS, use the **no** form of this command.

crypto dynamic-map *map-name map-index* **set pfs** [**group1 | group2 | group5 | group14 | group19 | group20 | group21 | group24**]

no crypto dynamic-map *map-name map-index* **set pfs**[**group1 | group2 | group5 | group14 | group19 | group20 | group21 | group24**]

Syntax Description

group1	Specifies that IPsec should use the 768-bit Diffie-Hellman prime modulus group when performing the new Diffie-Hellman exchange.
group2	Specifies that IPsec should use the 1024-bit Diffie-Hellman prime modulus group when performing the new Diffie-Hellman exchange.
group5	Specifies that IPsec should use the 1536-bit Diffie-Hellman prime modulus group when performing the new Diffie-Hellman exchange.
group14	Specifies which Diffie-Hellman key exchange group to use.
group19	Specifies which Diffie-Hellman key exchange group to use.
group20	Specifies which Diffie-Hellman key exchange group to use.
group21	Specifies which Diffie-Hellman key exchange group to use.
group24	Specifies which Diffie-Hellman key exchange group to use.
map-name	Specifies the name of the crypto map set.
map-index	Specifies the number you assign to the crypto map entry.

Defaults

By default, PFS is not set.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was modified to add Diffie-Hellman group 7.
8.0(4)	The **group 7** command option was deprecated. Attempts to configure group 7 will generate an error message and use group 5 instead.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

With PFS, every time a new security association is negotiated, a new Diffie-Hellman exchange occurs, which requires additional processing time. PFS adds another level of security because if one key is ever cracked by an attacker, only the data sent with that key is compromised.

crypto dynamic-map set tfc-packets

To enable dummy Traffic Flow Confidentiality (TFC) packets on an IPsec SA, use the **crypto dynamic-map set tfc-packets** command in global configuration mode. To disable TFC packets on an IPsec SA, use the **no** form of this command.

crypto dynamic-map *name priority* **set tfc-packets** [**burst length | auto**] [**payload-size bytes | auto**] [**timeout second | auto**]

no crypto dynamic-map *name priority* **set tfc-packets** [**burst length | auto**] [**payload-size bytes | auto**] [**timeout second | auto**]

Syntax Description

name	Specifies the name of the crypto map set.
priority	Specifies the priority that you assign to the crypto map entry.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

This command configures the existing DF policy (at an SA level) for the crypto map.

crypto dynamic-map set validate-icmp-errors

To specify whether to validate incoming ICMP error messages, received through an IPsec tunnel, that are destined for an interior host on the private network, use the **crypto dynamic-map set validate-icmp-errors** command in global configuration mode. To remove validation of incoming ICMP error messages from a crypto dynamic map entry, use the **no** form of this command.

crypto dynamic-map *name priority* **set validate-icmp-errors**

no crypto dynamic-map *name priority* **set validate-icmp-errors**

Syntax Description

name	Specifies the name of the crypto dynamic map set.
priority	Specifies the priority that you assign to the crypto dynamic map entry.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

This crypto map command is valid only for validating incoming ICMP error messages.

crypto engine accelerator-bias

To change the allocation of the cryptographic cores on Symmetric Multi-Processing (SMP) platforms, use the **crypto engine accelerator-bias** command in global configuration mode. To remove the command from the configuration, use the **no** form of this command.

crypto engine accelerator-bias [**balanced | ipsec | ssl**]

no crypto engine accelerator-bias [**balanced | ipsec | ssl**]

Syntax Description

balanced	Equally distributes cryptographic hardware resources (Admin/SSL and IPsec cores)
ipsec -client	Allocates cryptographic hardware resources to favor IPsec cores (includes SRTP encrypted voice traffic).
ssl-client	Allocates cryptographic hardware resources to favor Admin/SSL cores.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Cryptographic core rebalancing is available on the following platforms: ASA 5585, 5580, 5545/5555. and ASASM.

Examples

The following examples show the options available for configuring the crypto engine acccelerator-bias command:

```
hostname (config)# crypto engine ?

configure mode commands/options:
accelerator-bias
Specify how to allocate crypto accelerator processors

hostname (config)# crypto engine accelerator-bias ?
configure mode commands/options
balanced - Equally distribute crypto hardware resources
ipsec-client - Allocate crypto hardware resources to favor IPsec/Encrypted Voice (SRTP)
ssl-client - Allocate crypto hardware resources to favor SSL

hostname (config)# crypto engine accelerator-bias ssl
```

crypto engine large-mod-accel

To switch large modulus operations on an ASA 5510, 5520, 5540, or 5550 from software to hardware, use the **crypto engine large-mod-accel** command in global configuration mode. To remove the command from the configuration, use the **no** form of this command.

crypto engine large-mod-accel

no crypto engine large-mod-accel

Syntax Description

This command has no arguments or keywords.

Defaults

By default, the ASA performs large modulus operations in the software.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.3(2)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

This command is available only with the ASA models 5510, 5520, 5540, and 5550. It switches large modulus operations from software to hardware. The switch to hardware accelerates the following:

- 2048-bit RSA public key certificate processing.
- Diffie Hellman Group 5 (DH5) key generation.

We recommend that you use this command when necessary to improve the connections per second. Depending on the load, it might have a limited performance impact on SSL throughput.

We also recommend that you use either form of this command during a low-use or maintenance period to minimize a temporary packet loss that can occur during the transition of processing from software to hardware or hardware to software.

Note The ASA 5580/5500-X platforms already integrate this capability to switch large modulus operations; therefore, **crypto engine** commands are not applicable on these platforms.

Examples

The following example switches large modulus operations from software to hardware:

```
hostname(config)# crypto engine large-mod-accel
```

The following example removes the previous command from the configuration and switches large modulus operations back to software:

```
hostname(config)# no crypto engine large-mod-accel
```

Related Commands

Command	Description
show running-config crypto engine	Shows if large modulus operations are switched to hardware.
clear configure crypto engine	Returns large modulus operations to software. This command is equivalent to the **no crypto engine large-mod-accel** command.

crypto ikev1 enable

To enable ISAKMP IKEv1 negotiation on the interface on which the IPsec peer communicates with the ASA, use the **crypto ikev1 enable** command in global configuration mode. To disable ISAKMP IKEv1 on the interface, use the **no** form of this command.

crypto ikev1 enable *interface-name*

no crypto ikev1 enable *interface-name*

Syntax Description

interface-name	Specifies the name of the interface on which to enable or disable ISAKMP IKEv1 negotiation.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This **isakmp enable** command was introduced.
7.2(1)	The **crypto isakmp enable** command replaced the **isakmp enable** command.
8.4(1)	With the addition of IKEv2 capability, the **crypto isakmp enable** command was changed to the **crypto ikev1 enable** command.
9.0(1)	Support for multiple context mode was added.

Examples

The following example, entered in global configuration mode, shows how to disable ISAKMP on the inside interface:

```
hostname(config)# no crypto isakmp enable inside
```

Related Commands

Command	Description
clear configure crypto isakmp	Clears all the ISAKMP configuration.
clear configure crypto isakmp policy	Clears all ISAKMP policy configuration.

Command	Description
clear crypto isakmp sa	Clears the IKE runtime SA database.
show running-config crypto isakmp	Displays all the active configuration.

crypto ikev1 ipsec-over-tcp

To enable IPsec over TCP, use the **crypto ikev1 ipsec-over-tcp** command in global configuration mode. To disable IPsec over TCP, use the **no** form of this command.

crypto ikev1 ipsec-over-tcp [**port** *port1...port10*]

no crypto ikev1 ipsec-over-tcp [**port** *port1...port10*]

Syntax Description

port *port1...port10*	(Optional) Specifies the ports on which the device accepts IPsec over TCP connections. You can list up to 10 ports. Port numbers can be in the range of 1-65535. The default port number is 10000.

Defaults

The default value is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•		—

Command History

Release	Modification
7.0(1)	The **isakmp ipsec-over-tcp** command was introduced.
7.2.(1)	The **crypto isakmp ipsec-over-tcp** command replaced the **isakmp ipsec-over-tcp** command**.**
8.4(1)	The command name was changed from **crypto isakmp ipsec-over-tcp** to **crypto ikev1 ipsec-over-tcp**.

Examples

This example, entered in global configuration mode, enables IPsec over TCP on port 45:

```
hostname(config)# crypto ikev1 ipsec-over-tcp port 45
hostname(config)#
```

Related Commands

Command	Description
clear configure crypto isakmp	Clears all the ISAKMP configuration.
clear configure crypto isakmp policy	Clears all ISAKMP policy configuration.
clear crypto isakmp sa	Clears the IKE runtime SA database.
show running-config crypto isakmp	Displays all the active configuration.

crypto ikev1 limit max-in-negotiation-sa

To limit the number of IKEv2 in-negotiation (open) SAs on the ASA, use the **crypto ikev1 limit max-in-negotiation-sa** command in global configuration mode. To disable limits on the number of open SAs, use the **no** form of this command:

crypto ikev1 limit max-in-negotiation-sa *threshold percentage*

no crypto ikev1 limit max-in-negotiation-sa *threshold percentage*

Syntax Description

threshold percentage	The percentage of the total allowed SAs for the ASA that are allowed to be in negotiation (open). After reaching the threshold, additional connections are denied. The range is 1 to 100%. The default is 100%.

Defaults

The default is disabled. The ASA does not limit the number of open SAs.

Usage Guidelines

The **crypto ikev1 limit-max-in-negotiation-sa** command limits the maximum number of SAs that can be in negotiation at any time. 1

The **crypto kev2 limit max in-negotiation-sa** command stops further connections from negotiating to protect current connections and prevent memory and/or CPU attacks that the cookie-challenge feature may be unable to thwart.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
9.1(2)	This command was introduced.

Examples

The following example limits the number of IKEv1 connections that are in negotation to 70 percent of the maximum allowable IKEv1 connections:

```
hostname(config)# crypto ikev1 limit max in-negotiation-sa 70
```

Related Commands

Command	Description
crypto ikev1 limit max-sa	Limits the number of IKEv1 connections on the ASA,
clear configure crypto isakmp	Clears all the ISAKMP configuration.
clear configure crypto isakmp policy	Clears all ISAKMP policy configuration.
clear crypto isakmp sa	Clears the IKE runtime SA database.
show running-config crypto isakmp	Displays all the active configuration.

crypto ikev1 policy

To create an IKEv1 security association (SA) for IPsec connections, use the **crypto ikev2 policy** command in global configuration mode. To remove the policy, use the **no** form of this command:

crypto ikev1 policy *priority*

no crypto ikev1 policy *priority*

Syntax Description

priority	The policy suite priority. The range is 1-65535, with 1 being the highest and 65535 the lowest

Defaults

There is no default behavior or values.

Usage Guidelines

The command enters IKEv1 policy configuration mode, in which you specify additional IKEv1 SA settings. An IKEv1 SA is a key used in phase 1 to enable IKEv1 peers to communicate securely in phase 2. After entering the **crypto ikev1 policy** command, you can use additional commands to set the SA encryption algorithm, DH group, integrity algorithm, lifetime, and hash algorithm.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
8.4(1)	This command was added.
9.0(1)	Support for multiple context mode was added.

Examples

The following example creates the priority 1 IKEv1 SA and enters enters IKEv1 policy configuration mode:

```
hostname(config)# crypto ikev1 policy 1
hostname(config-ikev2-policy)#
```

Related Commands

Command	Description
crypto ikev2 cookie-challenge	Enables the ASA to send cookie challenges to peer devices in response to SA initiate packets,
clear configure crypto isakmp	Clears all the ISAKMP configuration.
clear configure crypto isakmp policy	Clears all ISAKMP policy configuration.
clear crypto isakmp sa	Clears the IKE runtime SA database.
show running-config crypto isakmp	Displays all the active configuration.

crypto ikev2 enable

To enable ISAKMP IKEv2 negotiation on the interface on which the IPsec peer communicates with the ASA, use the **crypto ikev2 enable** command in global configuration mode. To disable ISAKMP IKEv2 on the interface, use the **no** form of this command.

crypto ikev2 enable *interface-name* [**client-services** [**port** *port*]]

no crypto ikev2 enable *interface-name* [**client-services** [**port** *port*]]

Syntax Description

interface-name	Specifies the name of the interface on which to enable or disable ISAKMP IKEv2 negotiation.
client-services	Enables client services for IKEv2 connections on the interface. Client services include enhanced Anyconnect Secure Mobility client features including software updates, client profiles, GUI localization (translation) and customization, Cisco Secure Desktop, and SCEP proxy. If you disable client services, the AnyConnect client still establishes basic IPsec connections with IKEv2.
port *port*	Specifies a port to enable client services for IKEv2 connections. The range is 1-65535. The default is port 443.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
8.4(1)	This command was added.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

Using this command alone will not enable client services.

Examples

The following example, entered in global configuration mode, shows how to enable IKEv2 on the outside interface:

```
hostname(config)# crypto ikev2 enable outside client-services port 443
```

Related Commands

Command	Description
clear configure crypto isakmp	Clears all the ISAKMP configuration.
clear configure crypto isakmp policy	Clears all ISAKMP policy configuration.
clear crypto isakmp sa	Clears the IKE runtime SA database.
show running-config crypto isakmp	Displays all the active configuration.

crypto ikev2 cookie-challenge

To enable the ASA to send cookie challenges to peer devices in response to SA initiate packets, use the **crypto ikev2 cookie-challenge** command in global configuration mode. To disable cookie challenges, use the **no** form of this command:

crypto ikev2 cookie-challenge *threshold percentage* | **always** | **never**

no crypto ikev2 cookie-challenge *threshold percentage* | **always** | **never**

Syntax Description

threshold percentage	The percentage of the total allowed SAs for the ASA that are in negotiation, which triggers cookie challenges for any future SA negotiations. The range is zero to 99%. The default is 50%.
always	Always cookie-challenges incoming SAs.
never	Never cookie-challenges incoming SAs.

Defaults

No default behavior or values.

Usage Guidelines

Cookie challenging a peer prevents possible denial-of-service (DoS) attacks. An attacker initiates a DoS attack when the peer device sends an SA initiate packet and the ASA sends its response, but the peer device does not respond further. If the peer device does this continually, all the allowed SA requests on the ASA can be used up until it stops responding.

Enabling a threshold percentage using the **crypto ikev2 cookie-challenge** command limits the number of open SA negotiations. For example, with the default setting of 50%, when 50% of the allowed SAs are in negotiation (open), the ASA cookie-challenges any additional SA initiate packets that arrive. For the Cisco ASA 5580 with 10000 allowed IKEv2 SAs, after 5000 SAs have become open, any more incoming SAs are cookie-challenged.

If used in conjunction with the **crypto kev2 limit max in-negotiation-sa** command, configure the cookie-challenge threshold lower than the maximum in-negotiation threshold for an effective cross-check.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
8.4(1)	This command was added.
9.0(1)	Support for multiple context mode was added.

Examples

In the following example, the cookie-challenge threshold is set to 30%:

```
hostname(config)# crypto ikev2 cookie-challenge 30
```

Related Commands

Command	Description
crypto ikev2 limit max-sa	Limits the number of IKEv2 connections on the ASA,
crypto ikev2 limit max-in-negotiation-sa	Limits the number of IKEv2 in-negotiation (open) SAs on the ASA.
clear configure crypto isakmp	Clears all the ISAKMP configuration.
clear configure crypto isakmp policy	Clears all ISAKMP policy configuration.
clear crypto isakmp sa	Clears the IKE runtime SA database.
show running-config crypto isakmp	Displays all the active configuration.

crypto ikev2 limit max-in-negotiation-sa

To limit the number of IKEv2 in-negotiation (open) SAs on the ASA, use the **crypto ikev2 limit max in-negotiation-sa** command in global configuration mode. To disable limits on the number of open SAs, use the **no** form of this command:

crypto ikev2 limit max in-negotiation-sa *threshold percentage*

no crypto ikev2 limit max in-negotiation-sa *threshold percentage*

Syntax Description

threshold percentage	The percentage of the total allowed SAs for the ASA that are allowed to be in negotiation (open). After reaching the threshold, additional connections are denied. The range is 1 to 100%. The default is 100%.

Defaults

The default is disabled. The ASA does not limit the number of open SAs.

Usage Guidelines

The **crypto ikev2 limit-max-in-negotiation-sa** command limits the maximum number of SAs that can be in negotiation at any time. If used in conjunction with the **crypto ikev2 cookie-challenge** command, configure the cookie-challenge threshold lower than this limit for an effective cross-check.

Unlike the **crypto ikev2 cookie-challenge** command which challenges incoming connections with a cookie, the **crypto kev2 limit max in-negotiation-sa** command stops further connections from negotiating to protect current connections and prevent memory and/or CPU attacks that the cookie-challenge feature may be unable to thwart.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
8.4(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Examples

The following example limits the number of IKEv2 connections that are in negotation to 70 percent of the maximum allowable IKEv2 connections:

```
hostname(config)# crypto ikev2 limit max in-negotiation-sa 70
```

Related Commands

Command	Description
crypto ikev2 limit max-sa	Limits the number of IKEv2 connections on the ASA,
crypto ikev2 cookie-challenge	Enables the ASA to send cookie challenges to peer devices in response to SA initiated packets,
clear configure crypto isakmp	Clears all the ISAKMP configuration.
clear configure crypto isakmp policy	Clears all ISAKMP policy configuration.
clear crypto isakmp sa	Clears the IKE runtime SA database.
show running-config crypto isakmp	Displays all the active configuration.

crypto ikev2 limit max-sa

To limit the number of IKEv2 connections on the ASA, use the **crypto ikev2 limit max-sa** command in global configuration mode. To disable the limit on the number of connections, use the **no** form of this command:

crypto ikev2 limit max-sa *number*

no crypto ikev2 limit max-sa *number*

Syntax Description

number	The number of IKEv2 connections allowed on the ASA. After reaching the limit, additional connections are denied. The range is 1 to 10000.

Defaults

The default is disabled. The ASA does not limit the number of IKEv2 connections. The maximum number of allowed IKEv2 connections equals the maximum number of connections specified by the license.

Usage Guidelines

The **crypto ikev2 limit max-sa** command limits the maximum number of SAs on the ASA.

If used in conjunction with the **crypto ikev2 cookie-challenge** command, configure the cookie-challenge threshold lower than this limit for an effective cross-check.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
8.4(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Examples

The following example limits the number of IKEv2 connections to 5000:

```
hostname(config)# crypto ikev2 limit max-sa 5000
```

Related Commands

Command	Description
crypto ikev2 cookie-challenge	Enables the ASA to send cookie challenges to peer devices in response to SA initiated packets,
clear configure crypto isakmp	Clears all the ISAKMP configuration.
clear configure crypto isakmp policy	Clears all ISAKMP policy configuration.
clear crypto isakmp sa	Clears the IKE runtime SA database.
show running-config crypto isakmp	Displays all the active configuration.

crypto ikev2 policy

To create an IKEv2 security association (SA) for AnyConnect IPsec connections, use the **crypto ikev2 policy** command in global configuration mode. To remove the policy, use the **no** form of this command:

crypto ikev2 policy *priority policy_index*

no crypto ikev2 policy *priority policy_index*

Syntax Description

policy index	Accesses the IKEv2 policy configuration mode.
priority	The policy suite priority. The range is 1-65535, with 1 being the highest and 65535 the lowest. Group [1] [2] [5] becomes group [1] [2] [5] [14] [24] to support Diffie-Hellman groups 14 and 24 as part of IKEv2 key derivation.

Defaults

Nodefault behavior or values.

Usage Guidelines

An IKEv2 SA is a key used in phase 1 to enable IKEv2 peers to communicate securely in phase 2. After entering the **crypto ikev2 policy** command, you enter IKEv2 policy configuration mode, in which you specify additional IKEv2 SA settings. You can use additional commands to set the SA encryption algorithm, DH group, integrity algorithm, lifetime, and hash algorithm.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
8.4(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added. Added policy index option.

Examples

The following example creates the priority 1 IKEv2 SA and enters enters IKEv2 policy configuration mode:

```
hostname(config)# crypto ikev2 policy 1
hostname(config-ikev2-policy)#
```

Related Commands

Command	Description
crypto ikev2 cookie-challenge	Enables the ASA to send cookie challenges to peer devices in response to SA initiated packets,
clear configure crypto isakmp	Clears all the ISAKMP configuration.
clear configure crypto isakmp policy	Clears all ISAKMP policy configuration.
clear crypto isakmp sa	Clears the IKE runtime SA database.
show running-config crypto isakmp	Displays all the active configuration.

crypto ikev2 redirect

To specify the IKEv2 phase at which load-balancing redirection from master to cluster member occurs, use the **crypto ikev2 redirect** command in global configuration mode. To remove the command, use the **no** form of this command:

crypto ikev2 redirect {**during-init** | **during-auth**}

no crypto ikev2 redirect {**during-init** | **during-auth**}

Syntax Description

during-auth	Enables load-balancing redirection to a cluster member during the IKEv2 authentication exchange.
during-init	Enables load-balancing redirection to a cluster member during the IKEv2 SA initiated exchange.

Defaults

The default is load-balancing redirection to a cluster member, which occurs during the IKEv2 authentication exchange.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	—	•		—

Command History

Release	Modification
8.4(1)	This command was introduced.

Examples

The following example sets the load-balancing redirection to a cluster member to occur during the IKEv2 initiated exchange:

```
hostname(config)# crypto ikev2 redirect during-init
```

Related Commands

Command	Description
crypto ikev2 cookie-challenge	Enables the ASA to send cookie challenges to peer devices in response to SA initiated packets,
clear configure crypto isakmp	Clears all the ISAKMP configuration.
clear configure crypto isakmp policy	Clears all ISAKMP policy configuration.

Command	Description
clear crypto isakmp sa	Clears the IKE runtime SA database.
show running-config crypto isakmp	Displays all the active configuration.

crypto ikev2 remote-access trust-point

To specify a global trustpoint to be referenced and used as the identity certificate trustpoint of the ASA for AnyConnect IKEv2 connections, use the **crypto ikev2 remote-access trust-point** command in tunnel group configuration mode. To remove the command from the configuration, use the **no** form of the command:

crypto ikev2 remote-access trust-point *name* [*line number*]

no crypto ikev2 remote-access trust-point *name* [*line number*]

Syntax Description

name	The name of the trustpoint, up to 65 characters.
line number	Specifies where in the line number you want the trustpoint inserted. Typically, this option is used to insert a trustpoint at the top without removing and readding the other line. If a line is not specified, the ASA adds the trustpoint at the end of the list.

Defaults

No default behavior or values.

Usage Guidelines

Use the **crypto ikev2 remote-access trust-point** command to configure a trustpoint for the ASA to authenticate itself to the AnyConnect client for all IKEv2 connections. Using this command allows the AnyConnect client to support group selection for the user.

You can configure two trustpoints at the same time: two RSA, two ECDSA, or one of each. The ASA scans the configured trustpoint list and chooses the first one that the client supports. If ECDSA is preferred, you should configure that trustpoint before the RSA trustpoint.

If you try to add a trustpoint that already exists, you receive an error. If you use the **no crypto ikev2 remote-access trustpoint** command without specifying which trustpoint name to remove, all trustpoint configuration is removed.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tunnel-group configuration	•	—	•	•	—

Command History

Release	Modification
8.4(1)	This command was introduced.
9.0(1)	Support for multiple context mode and the configuration of two trustpoints were added.

Examples

The following example specifies the trustpoint *cisco_asa_trustpoint*:

```
hostname(config)# crypto ikev2 remote-access trust-point cisco_asa_trustpoint
```

crypto ipsec df-bit

To configure DF-bit policy for IPsec packets, use the **crypto ipsec df-bit** command in global configuration mode.

crypto ipsec df-bit [**clear-df** | **copy-df** | **set-df**] *interface*

Syntax Description

clear-df	(Optional) Specifies that the outer IP header will have the DF bit cleared and that the ASA may fragment the packet to add the IPsec encapsulation.
copy-df	(Optional) Specifies that the ASA will look in the original packet for the outer DF bit setting.
set-df	(Optional) Specifies that the outer IP header will have the DF bit set; however, the ASA may fragment the packet if the original packet had the DF bit cleared.
interface	Specifies an interface name.

Defaults

This command is disabled by default. If this command is enabled without a specified setting, the ASA uses the **copy-df** setting as the default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

The DF bit with IPsec tunnels feature lets you specify whether or not the ASA can clear, set, or copy the Don't Fragment (DF) bit from the encapsulated header. The DF bit within the IP header determines whether or not a device is allowed to fragment a packet.

Use the **crypto ipsec df-bit** command in global configuration mode to configure the ASA to specify the DF bit in an encapsulated header. This command treats the DF-bit setting of the clear-text packet and either clears, set, or copies it to the outer IPsec header when encryption is applied.

When encapsulating tunnel mode IPsec traffic, use the **clear-df** setting for the DF bit. This setting lets the device send packets larger than the available MTU size. Also, this setting is appropriate if you do not know the available MTU size.

Caution Packets will get dropped if you set the following conflicting configuration:
crypto ipsec fragmentation after-encryption (fragment packets)
crypto ipsec df-bit set-df outside (set the DF bit)

Examples

The following example, entered in global configuration mode, sets the IPsec DF policy to **clear-df**:

```
hostname(config)# crypto ipsec df-bit clear-df outside
hostname(config)#
```

Related Commands

Command	Description
crypto ipsec fragmentation	Configures the fragmentation policy for IPsec packets.
show crypto ipsec df-bit	Displays the DF-bit policy for a specified interface.
show crypto ipsec fragmentation	Displays the fragmentation policy for a specified interface.

crypto ipsec fragmentation

To configure the fragmentation policy for IPsec packets, use the **crypto ipsec fragmentation** command in global configuration mode.

crypto ipsec fragmentation {**after-encryption** | **before-encryption**} *interface*

Syntax Description

after-encryption	Specifies the ASA to fragment IPsec packets that are close to the maximum MTU size after encryption (disables prefragmentation).
before-encryption	Specifies the ASA to fragment IPsec packets that are close to the maximum MTU size before encryption (enables prefragmentation).
interface	Specifies an interface name.

Defaults

Before-encryption is enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

When a packet is near the size of the MTU of the outbound link of the encrypting ASA, and it is encapsulated with IPsec headers, it is likely to exceed the MTU of the outbound link. This causes packet fragmentation after encryption, which makes the decrypting device reassemble in the process path. Prefragmentation for IPsec VPNs increases the performance of the device when decrypting by letting it operate in the high performance CEF path instead of the process path.

Prefragmentation for IPsec VPNs lets an encrypting device predetermine the encapsulated packet size from information available in transform sets, which are configured as part of the IPsec SA. If the device predetermines that the packet will exceed the MTU of the output interface, the device fragments the packet before encrypting it. This avoids process level reassembly before decryption and helps improve decryption performance and overall IPsec traffic throughput.

The minimum MTU allowed on an IPv6 enabled interface is 1280 bytes; however, if IPsec is enabled on the interface, the MTU value should not be set below 1380 because of the overhead of IPsec encryption. Setting the interface below 1380 bytes may result in dropped packets.

Caution Packets will get dropped if you set the following conflicting configuration:
crypto ipsec fragmentation after-encryption (fragment packets)
crypto ipsec df-bit set-df outside (set the DF bit)

Examples

The following example, entered in global configuration mode, enables prefragmentation for IPsec packets globally on the device:

```
hostname(config)# crypto ipsec fragmentation before-encryption inside
hostname(config)#
```

The following example, entered in global configuration mode, disables prefragmentation for IPsec packets on the interface:

```
hostname(config)# crypto ipsec fragmentation after-encryption inside
hostname(config)#
```

Related Commands

Command	Description
crypto ipsec df-bit	Configures the DF-bit policy for IPsec packets.
show crypto ipsec fragmentation	Displays the fragmentation policy for IPsec packets.
show crypto ipsec df-bit	Displays the DF-bit policy for a specified interface.

crypto ipsec security-association pmtu-aging

To enable path maximum transfer unit (PMTU) aging, use the **crypto ipsec security-association pmtu-aging** command in global configuration mode. To disable PMTU aging, use the no form of the command:

crypto ipsec security-association pmtu-aging *reset-interval*

[no] crypto ipsec security-association pmtu-aging *reset-interval*

Syntax Description

reset-interval	Sets the interval at which the PMTU value is reset.

Defaults

This feature is enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

The reset interval is specified in seconds.

crypto ipsec ikev2 ipsec-proposal

To create an IKEv2 proposal, use the **crypto ipsec ikev2 ipsec-proposal** command in global configuration mode.To remove the proposal, use the **no** form of this command.

crypto ipsec ikev2 ipsec-proposal *proposal tag proposal_name*

no crypto ipsec ikev2 ipsec-proposal *proposal tag proposal_name*

Syntax Description

proposal name	Accesses the IPsec ESP proposal sub-mode.
proposal tag	The name of the IKEv2 IPsec proposal, a string from 1 to 64 characters.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.4(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

This command creates a proposal and enters ipsec proposal configuration mode, in which you can specify multiple encryption and integrity types for the proposal.

Examples

The following example creates the IPsec proposal named secure, and enters IPsec proposal configuration mode:

```
hostname(config)# crypto ipsec ikev2 ipsec-proposal secure
hostname(config-ipsec-proposal)#
```

Related Commands

Command	Description
show running-config ipsec	Displays the configuration of all transform sets.
crypto map set transform-set	Specifies the transform sets to use in a crypto map entry.
crypto dynamic-map set transform-set	Specifies the transform sets to use in a dynamic crypto map entry.

Command	Description
show running-config crypto map	Displays the crypto map configuration.
show running-config crypto dynamic-map	Displays the dynamic crypto map configuration.

crypto ipsec ikev2 sa-strength-enforcement

Ensures that the strength of the IKEv2 encryption cipher is higher than the strength of its child IPsec SA's encryption ciphers. To disable this feature, use the **no** form of this command.

crypto ipsec ikev2 sa-strength-enforcement

no crypto ipsec ikev2 sa-strength-enforcement

Defaults

Enforcement is on by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
9.1(2)	This command was introduced.

Usage Guidelines

Security is not increased when a child SA has a stronger encryption cipher than its parent IKEv2 connection. It is good security practice to configure the IPsec so this does not happen. The strength enforcement setting only affects the encryption cipher; it does not alter the integrity or key exchange algorithms. The IKEv2 system compares the relative strength of each child SA's selected encryption cipher as follows:

When enabled, verifies that the configured encryption cipher for the child SA is not stronger than the parent IKEv2 encryption cipher. If found, then the child SA will be updated to use the parent cipher. If no compatible cipher is found, then the child SA negotiation is be aborted. The syslog and debug message logs these actions.

The supported encryption ciphers are listed below in order of strength, from highest to lowest. Ciphers on the same line have equivalent strength for purposes of this check.

- AES-GCM-256, AES-CBC-256
- AES-GCM-192, AES-CBC, 192
- AES-GCM-128, AES-CBC-128
- 3DES
- DES
- AES-GMAC (any size), NULL

Related Commands

Command	Description
show running-config ipsec	Displays crypto ipsec ikev2 sa-strength-enforcement when enabled.

crypto ipsec security-association lifetime

To configure global lifetime values, use the **crypto ipsec security-association lifetime** command in global configuration mode. To reset a global lifetime value to the default value, use the **no** form of this command.

crypto ipsec security-association lifetime {**seconds** *seconds* | **kilobytes** *kilobytes*}

no crypto ipsec security-association lifetime {**seconds** *seconds* | **kilobytes** *kilobytes*}

Syntax Description

kilobytes	Specifies the volume of traffic (in kilobytes) that can pass between peers using a given security association before that security association expires. The range is 10 to 2147483647 kbytes. The default is 4,608,000 kilobytes.
seconds	Specifies the number of seconds a security association will live before it expires. The range is 120 to 214783647 seconds. The default is 28,800 seconds (eight hours).

Defaults

The default number of kilobytes is 4,608,000; the default number of seconds is 28,800.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

The **crypto ipsec security-association lifetime** command changes global lifetime values used when negotiating IPsec security associations.

IPsec security associations use shared secret keys. These keys and their security associations time out together.

Assuming that the particular crypto map entry has no lifetime values configured, when the ASA requests new security associations during negotiation, it specifies its global lifetime value in the request to the peer; it uses this value as the lifetime of the new security associations. When the ASA receives a negotiation request from the peer, it uses the smaller of the lifetime values proposed by the peer or the locally configured lifetime value as the lifetime of the new security associations.

There are two lifetimes: a “timed” lifetime and a “traffic-volume” lifetime. The security association expires after the first of these lifetimes is reached.

The ASA lets the user change crypto map, dynamic map, and IPsec settings on the fly. If this is changed, the ASA brings down only the connections affected by the change. If the user changes an existing access list associated with a crypto map, specifically by deleting an entry within the access list, the result is that only the associated connection is brought down. Connections based on other entries in the access list are not affected.

To change the global timed lifetime, use the **crypto ipsec security-association lifetime seconds** command. The timed lifetime causes the security association to time out after the specified number of seconds have passed.

To change the global traffic-volume lifetime, use the **crypto ipsec security-association lifetime kilobytes** command. The traffic-volume lifetime causes the security association to time out after the specified amount of traffic (in kilobytes) has been protected by the security associations' key.

Shorter lifetimes can make it harder to mount a successful key recovery attack, because the attacker has less data encrypted under the same key to work with. However, shorter lifetimes require more CPU processing time for establishing new security associations.

The security association (and corresponding keys) expires according to whichever occurs sooner, either after the number of seconds has passed or after the amount of traffic in kilobytes has passed.

Examples

The following example specifies a global timed lifetime for security associations:

```
hostname(config)# crypto ipsec-security association lifetime seconds 240
hostname(config)#
```

Related Commands

Command	Description
clear configure crypto map	Clears all IPsec configuration (that is, global lifetimes and transform sets).
show running-config crypto map	Displays all configuration for all the crypto maps.

crypto ipsec security-association replay

To configure the IPsec antireplay window size, use the **crypto ipsec security-association replay** command in global configuration mode. To reset the window size to the default value, use the **no** form of this command.

crypto ipsec security-association replay {**window-size** *n* | **disable**}

no crypto ipsec security-association replay {**window-size** *n* | **disable**}

Syntax Description

n	Sets the window size. Values can be 64, 128, 256, 512, or 1024. The default is 64.
disable	Disables antireplay checking.

Defaults

The default window size is 64.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.2(4)/8.0(4)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

Cisco IPsec authentication provides antireplay protection from an attacker duplicating encrypted packets by assigning a unique sequence number to each encrypted packet. (Security association antireplay is a security service in which the receiver can reject old or duplicate packets to protect itself from replay attacks.) The decryptor checks off the sequence numbers that it has seen before. The encryptor assigns sequence numbers in an increasing order. The decryptor remembers the value X of the highest sequence number that it has already seen. N is the window size, and the decryptor also remembers whether it has seen packets having sequence numbers from X-N+1 through X. Any packet with the sequence number X-N is discarded. Currently, N is set at 64, so only 64 packets can be tracked by the decryptor.

At times, however, the 64-packet window size is not sufficient. For example, QoS gives priority to high-priority packets, which could cause some low-priority packets to be discarded even though they could be one of the last 64 packets received by the decryptor; this event can generate warning syslog messages that are false alarms. The **crypto ipsec security-association replay** command lets you expand the window size, allowing the decryptor to keep track of more than 64 packets.

Increasing the antireplay window size has no impact on throughput and security. The impact on memory is insignificant because only an extra 128 bytes per incoming IPsec SA is needed to store the sequence number on the decryptor. It is recommended that you use the full 1024 window size to eliminate any future antireplay problems.

Examples

The following example specifies the antireplay window size for security associations:

```
hostname(config)# crypto ipsec security-association replay window-size 1024
hostname(config)#
```

Related Commands

Command	Description
clear configure crypto map	Clears all IPsec configuration (that is, global lifetimes and transform sets).
shape	Enables traffic shaping.
priority	Enables priority queueing.
show running-config crypto map	Displays all configuration for all the crypto maps.

crypto ipsec ikev1 transform-set

To create or remove an IKEv1 transform set, use the **crypto ipsec ikev1 transform-set** command in global configuration mode. To remove a transform set, use the **no** form of this command.

crypto ipsec ikev1 transform-set *transform-set-name encryption* [*authentication*]

no crypto ipsec ikev1 transform-set *transform-set-name encryption* [*authentication*]

Syntax Description

authentication	(Optional) Specify one of the following authentication methods to ensure the integrity of IPsec data flows: **esp-md5-hmac** to use the MD5/HMAC-128 as the hash algorithm. **esp-sha-hmac** to use the SHA/HMAC-160 as the hash algorithm. **esp-none** to not use HMAC authentication.
encryption	Specify one of the following encryption methods to protect IPsec data flows: **esp-aes** to use AES with a 128-bit key. **esp-aes-192** to use AES with a 192-bit key. **esp-aes-256** to use AES with a 256-bit key. **esp-des** to use 56-bit DES-CBC. **esp-3des** to use triple DES algorithm. **esp-null** to not use encryption.
transform-set-name	Name of the transform set being created or modified. To view the transform sets already present in the configuration, enter the **show running-config ipsec** command.

Defaults

The default authentication setting is esp-none (no authentication).

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0	This command was introduced.
7.2(1)	This section was rewritten.
8.4(1)	The **ikev1** keyword was added.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

This command identifes the IPsec encryption and hash algorithms to be used by the transform set.

Following the configuration of a transform set, you assign it to a crypto map. You can assign up to six transform sets to a crypto map. When the peer attempts to establish an IPsec session, the ASA evaluates the peer using the access list of each crypto map until it finds a match. The ASA then evaluates all of the protocols, algorithms, and other settings negotiated by the peer using those in the transform sets assigned to the crypto map until it finds a match. If the ASA matches the peer's IPsec negotiations to the settings in a transform set, it applies them to the protected traffic as part of its IPsec security association. The ASA terminates the IPsec session if it fails to match the peer to an access list and find an exact match of the security settings of the peer to those in a transform set assigned to the crypto map.

You can specify either the encryption or the authentication first. You can specify the encryption without specifying the authentication. If you specify the authentication in a transform set that you are creating, you must specify the encryption with it. If you specify only the authentication in a transform set that you are modifying, the transform set retains its current encryption setting.

If you are using AES encryption, we recommend that you use the **isakmp policy priority group 5** command, also in in global configuration mode, to assign Diffie-Hellman group 5 to accommodate the large key sizes provided by AES.

Tip When you apply transform sets to a crypto map or a dynamic crypto map and view the transform sets assigned to it, you will find it helpful if the names of the transform sets reflect their configuration. For example, the name "3des-md5" in the first example below shows the encryption and authentication used in the transform set. The values that follow the name are the actual encryption and authentication settings assigned to the transform set.

Examples

The following commands show all possible encryption and authentication options, excluding those that specify no encryption and no authentication:

```
hostname(config)# crypto ipsec ikev1 transform-set 3des-md5 esp-3des esp-md5-hmac
hostname(config)# crypto ipsec ikev1 transform-set 3des-sha esp-3des esp-sha-hmac
hostname(config)# crypto ipsec ikev1 transform-set 56des-md5 esp-des esp-md5-hmac
hostname(config)# crypto ipsec ikev1 transform-set 56des-sha esp-des esp-sha-hmac
hostname(config)# crypto ipsec ikev1 transform-set 128aes-md5 esp-aes esp-md5-hmac
hostname(config)# crypto ipsec ikev1 transform-set 128aes-sha esp-aes esp-sha-hmac
hostname(config)# crypto ipsec ikev1 transform-set 192aes-md5 esp-aes-192 esp-md5-hmac
hostname(config)# crypto ipsec ikev1 transform-set 192aes-sha esp-aes-192 esp-sha-hmac
hostname(config)# crypto ipsec ikev1 transform-set 256aes-md5 esp-aes-256 esp-md5-hmac
hostname(config)# crypto ipsec ikev1 transform-set 256aes-sha esp-aes-256 esp-sha-hmac
hostname(config)#
```

Related Commands

Command	Description
show running-config ipsec	Displays the configuration of all transform sets.
crypto map set transform-set	Specifies the transform sets to use in a crypto map entry.
crypto dynamic-map set transform-set	Specifies the transform sets to use in a dynamic crypto map entry.
show running-config crypto map	Displays the crypto map configuration.
show running-config crypto dynamic-map	Displays the dynamic crypto map configuration.

crypto ipsec ikev1 transform-set mode transport

To specify the transport mode for IPsec IKEv1 connections, use the **crypto ipsec ikev1 transform-set mode transport** command in global configuration mode. To remove the command, use the **no** form of this command:

crypto ipsec ikev1 transform-set *transform-set-name* **mode** {**transport**}

no crypto ipsec ikev1 transform-set *transform-set-name* **mode** {**transport**}

Syntax Description

transform-set-name	Name of the transform set being modified. To view the transform sets already present in the configuration, enter the **show running-config ipsec** command.

Defaults

The default setting for the transport mode is disabled. IPsec uses the networked tunnel mode.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	This command was rewritten.
8.4(1)	The **ikev1** keyword was added.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

Use the **crypto ipsec ikev1 transform-set mode transport** command to specify the host-to-host transport mode for IPsec, instead of the default networked tunnel mode.

Examples

The following commands show all possible encryption and authentication options, excluding those that specify no encryption and no authentication:

```
hostname(config)# crypto ipsec ikev1 transform-set
hostname(config)#
```

Related Commands

Command	Description
show running-config ipsec	Displays the configuration of all transform sets.
crypto map set transform-set	Specifies the transform sets to use in a crypto map entry.

Command	Description
crypto dynamic-map set transform-set	Specifies the transform sets to use in a dynamic crypto map entry.
show running-config crypto map	Displays the crypto map configuration.
show running-config crypto dynamic-map	Displays the dynamic crypto map configuration.

CHAPTER 12

crypto isakmp disconnect-notify through cxsc auth-proxy port Commands

crypto isakmp disconnect-notify

To enable disconnect notification to peers, use the **crypto isakmp disconnect-notify** command in global configuration mode. To disable disconnect notification, use the **no** form of this command.

crypto isakmp disconnect-notify

no crypto isakmp disconnect-notify

Syntax Description

This command has no arguments or keywords.

Defaults

The default value is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	The **isakmp disconnect-notify** command was introduced.
7.2.(1)	The **crypto isakmp disconnect-notify** command replaced the **isakmp disconnect-notify** command**.**
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

You can enable disconnect notifications to peers with the use of the following delete reasons:

- IKE_DELETE_RESERVED = 0
  An invalid code. Do not send.
- IKE_DELETE_BY_ERROR = 1
  A transmission error for a timeout or failure when expecting a response to a keepalive or any other IKE packet ACK. The default text is “Connectivity to client lost.”
- IKE_DELETE_BY_USER_COMMAND = 2
  The SA was actively deleted with manual intervention by the user or administrator. The default text is “Manually Disconnected by Administrator.”
- IKE_DELETE_BY_EXPIRED_LIFETIME = 3
  The SA has expired. The default text is “Maximum Configured Lifetime Exceeded.”
- IKE_DELETE_NO_ERROR = 4
  An unknown error caused the delete.
- IKE_DELETE_SERVER_SHUTDOWN = 5
  The server is being shut down.

- IKE_DELETE_SERVER_IN_FLAMES = 6
  The server has some severe problems. The default text is “Peer is having heat problems.”
- IKE_DELETE_MAX_CONNECT_TIME = 7
  The maximum allowed time of an active tunnel has expired. Unlike EXPIRED_LIFETIME, this reason indicates that the entire IKE-negotiated/controlled tunnel is being disconnected, not just this one SA. The default text is “Maximum Configured Connection Time Exceeded.”
- IKE_DELETE_IDLE_TIMEOUT = 8
  The tunnel has been idle for the maximum allowed time; therefore, the entire IKE-negotiated tunnel has been disconnected, not just this one SA. The default text is “Maximum Idle Time for Session Exceeded.”
- IKE_DELETE_SERVER_REBOOT = 9
  The server is rebooting.
- IKE_DELETE_P2_PROPOSAL_MISMATCH = 10
  Phase2 proposal mismatch.
- IKE_DELETE_FIREWALL_MISMATCH = 11
  Firewall parameter mismatch.
- IKE_DELETE_CERT_EXPIRED = 12
  User certification required. The default message is “User or Root Certificate has Expired.”
- IKE_DELETE_CLIENT_NOT_ALLOWED = 13
  Client type or version not allowed.
- IKE_DELETE_FW_SERVER_FAIL = 14
  Failed to contact Zone Integrity Server.
- IKE_DELETE_ACL_ERROR = 15
  ACL downloaded from AAA cannot be inserted. The default message is “ACL parsing error.”

Examples

The following example, entered in global configuration mode, enables disconnect notification to peers:

```
hostname(config)# crypto isakmp disconnect-notify
```

Related Commands

Command	Description
clear configure crypto isakmp	Clears all the ISAKMP configuration.
clear configure crypto isakmp policy	Clears all ISAKMP policy configuration.
clear crypto isakmp sa	Clears the IKE runtime SA database.
show running-config crypto isakmp	Displays all the active configuration.

crypto isakmp identity

To set the Phase 1 ID to be sent to the peer, use the **crypto isakmp identity** command in global configuration mode. To return to the default setting, use the **no** form of this command.

crypto isakmp identity {**address** | **hostname** | **key-id** *key-id-string* | **auto**}

no crypto isakmp identity {**address** | **hostname** | **key-id** *key-id-string* | **auto**}

Syntax Description

address	Uses the IP address of the host exchanging ISAKMP identity information.
auto	Determines ISAKMP negotiation by connection type; IP address for preshared key or cert DN for certificate authentication.
hostname	Uses the fully qualified domain name of the host exchanging ISAKMP identity information (default). This name comprises the hostname and the domain name.
key-id *key_id_string*	Specifies the string used by the remote peer to look up the preshared key.

Defaults

The default ISAKMP identity is **crypto isakmp identity auto**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	The **isakmp identity** command was introduced.
7.2(1)	The **crypto isakmp identity** command replaced the **isakmp identity** command.
9.0(1)	Support for multiple context mode was added.

Examples

The following example, entered in global configuration mode, enables ISAKMP negotiation on the interface for communicating with the IPsec peer, depending on connection type:

```
hostname(config)# crypto isakmp identity auto
```

Related Commands

Command	Description
clear configure crypto isakmp	Clears all the ISAKMP configuration.
clear configure crypto isakmp policy	Clears all ISAKMP policy configuration.
clear crypto isakmp sa	Clears the IKE runtime SA database.
show running-config crypto isakmp	Displays all the active configuration.

crypto isakmp nat-traversal

To enable NAT traversal globally, check that ISAKMP is enabled (you enable it with the **crypto isakmp enable** command) in global configuration mode. To disable the NAT traversal, use the **no** form of this command.

crypto isakmp nat-traversal *natkeepalive*

no crypto isakmp nat-traversal *natkeepalive*

Syntax Description

natkeepalive	Sets the NAT keep alive interval, from 10 to 3600 seconds. The default is 20 seconds.

Defaults

By default, NAT traversal is enabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	The **isakmp nat-traversal** command was introduced.
7.2.(1)	The **crypto isakmp nat-traversal** command replaced the **isakmp nat-traversal** command**.**
8.0(2)	NAT traversal is enabled by default.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

NAT including PAT is used in many networks where IPsec is also used, but there are a number of incompatibilities that prevent IPsec packets from successfully traversing NAT devices. NAT traversal enables ESP packets to pass through one or more NAT devices.

The ASA supports NAT traversal as described by Version 2 and Version 3 of the IETF "UDP Encapsulation of IPsec Packets" draft, available at http://www.ietf.org/html.charters/ipsec-charter.html, and supports NAT traversal for both dynamic and static crypto maps.

This command enables NAT-T globally on the ASA. To disable in a crypto-map entry, use the **crypto map set nat-t-disable** command.

Examples

The following example, entered in global configuration mode, enables ISAKMP and then sets NAT traversal with a keepalive interval of 30 seconds:

```
hostname(config)# crypto isakmp enable
```

```
hostname(config)# crypto isakmp nat-traversal 30
```

Related Commands

Command	Description
clear configure crypto isakmp	Clears all the ISAKMP configuration.
clear configure crypto isakmp policy	Clears all ISAKMP policy configuration.
clear crypto isakmp sa	Clears the IKE runtime SA database.
show running-config crypto isakmp	Displays all the active configuration.

crypto isakmp policy authentication

To specify an authentication method within an IKE policy, use the **crypto isakmp policy authentication** command in global configuration mode. To remove the ISAKMP authentication method, use the related **clear configure** command.

crypto isakmp policy *priority* **authentication** {**crack** | **pre-share** | **rsa-sig**}

Syntax Description

crack	Specifies IKE CRACK as the authentication method.
pre-share	Specifies preshared keys as the authentication method.
priority	Uniquely identifies the IKE policy and assigns a priority to the policy. Use an integer from 1 to 65,534, with 1 being the highest priority and 65,534 the lowest.
rsa-sig	Specifies RSA signatures as the authentication method. RSA signatures provide non-repudiation for the IKE negotiation. This basically means you can prove to a third party whether you had an IKE negotiation with the peer.

Defaults

The default ISAKMP policy authentication is **pre-share**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	The **isakmp policy authentication** command was introduced.
7.2.(1)	The **crypto isakmp policy authentication** command replaced the **isakmp policy authentication** command**.**

Usage Guidelines

IKE policies define a set of parameters for IKE negotiation.

If you specify RSA signatures, you must configure the ASA and its peer to obtain certificates from a CA server. If you specify preshared keys, you must configure these preshared keys separately within the ASA and its peer.

Examples

The following example, entered in global configuration mode, shows how to use the **crypto isakmp policy authentication** command. This example sets the authentication method of RSA signatures to be used for the IKE policy with the priority number of 40.

```
hostname(config)# crypto isakmp policy 40 authentication rsa-sig
```

Related Commands

Command	Description
clear configure crypto isakmp	Clears all the ISAKMP configuration.
clear configure crypto isakmp policy	Clears all ISAKMP policy configuration.
clear crypto isakmp sa	Clears the IKE runtime SA database.
show running-config crypto isakmp	Displays all the active configuration.

crypto isakmp policy encryption

To specify the encryption algorithm to use within an IKE policy, use the **crypto isakmp policy encryption** command in global configuration mode. To reset the encryption algorithm to the default value, which is **des,** use the **no** form of this command.

crypto isakmp policy *priority* **encryption** {**aes** | **aes-192** | **aes-256** | **des** | **3des**}

no crypto isakmp policy *priority* **encryption** {**aes** | **aes-192** | **aes-256** | **des** | **3des**}

Syntax Description

3des	Specifies that the triple DES encryption algorithm be used in the IKE policy.
aes	Specifies that the encryption algorithm to use in the IKE policy is AES with a 128-bit key.
aes-192	Specifies that the encryption algorithm to use in the IKE policy is AES with a 192-bit key.
aes-256	Specifies that the encryption algorithm to use in the IKE policy is AES with a 256-bit key.
des	Specifies that the encryption algorithm to use in the IKE policy is 56-bit DES-CBC.
priority	Uniquely identifies the IKE policy and assigns a priority to the policy. Use an integer from 1 to 65,534, with 1 being the highest priority and 65,534 the lowest.

Defaults

The default ISAKMP policy encryption is **3des**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	The **isakmp policy encryption** command was introduced.
7.2.(1)	The **crypto isakmp policy encryption** command replaced the **isakmp policy encryption** command**.**

Examples

The following example, entered in global configuration mode, shows use of the **crypto isakmp policy encryption** command; it sets 128-bit key AES encryption as the algorithm to be used within the IKE policy with the priority number of 25.

```
hostname(config)# crypto isakmp policy 25 encryption aes
```

The following example, entered in global configuration mode, sets the 3DES algorithm to be used within the IKE policy with the priority number of 40.

```
hostname(config)# crypto isakmp policy 40 encryption 3des
hostname(config)#
```

Related Commands

Command	Description
clear configure crypto isakmp	Clears all the ISAKMP configuration.
clear configure crypto isakmp policy	Clears all ISAKMP policy configuration.
clear crypto isakmp sa	Clears the IKE runtime SA database.
show running-config crypto isakmp	Displays all the active configuration.

crypto isakmp policy group

To specify the Diffie-Hellman group for an IKE policy, use the **crypto isakmp policy group** command in global configuration mode.To reset the Diffie-Hellman group identifier to the default value, use the **no** form of this command.

crypto isakmp policy *priority* **group** {**1** | **2** | **5**}

no crypto isakmp policy *priority* **group**

Syntax Description

group 1	Specifies that the 768-bit Diffie-Hellman group be used in the IKE policy. This is the default value.
group 2	Specifies that the 1024-bit Diffie-Hellman group 2 be used in the IKE policy.
group 5	Specifies that the 1536-bit Diffie-Hellman group 5 be used in the IKE policy.
priority	Uniquely identifies the IIKE policy and assigns a priority to the policy. Use an integer from 1 to 65,534, with 1 being the highest priority and 65,534 the lowest.

Defaults

The default group policy is group 2.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	The **isakmp policy group** command was introduced.
7.2.(1)	The **crypto isakmp policy group** command replaced the **isakmp policy group** command**.**
8.0(4)	The **group 7** command option was deprecated. Attempts to configure group 7 will generate an error message and use group 5 instead.

Usage Guidelines

IKE policies define a set of parameters to use during IKE negotiation.

There are three group options: 768-bit (DH Group 1), 1024-bit (DH Group 2), and 1536-bit (DH Group 5). The 1024-bit and 1536-bit Diffie-Hellman Groups provide stronger security, but require more CPU time to execute.

Note The Cisco VPN Client Version 3.x or higher requires ISAKMP policy to use DH group 2. (If you configure DH group 1, the Cisco VPN Client cannot connect.)

AES support is available on ASAs licensed for VPN-3DES only. Due to the large key sizes provided by AES, ISAKMP negotiation should use Diffie-Hellman (DH) group 5 instead of group 1 or group 2. To configures group 5, use the **crypto isakmp policy priority group 5** command.

Examples

The following example, entered in global configuration mode, shows how to use the **crypto isakmp policy group** command. This example sets group 2, the 1024-bit Diffie Hellman, to use for the IKE policy with the priority number of 40.

```
hostname(config)# crypto isakmp policy 40 group 2
```

Related Commands

Command	Description
clear configure crypto isakmp	Clears all the ISAKMP configuration.
clear configure crypto isakmp policy	Clears all ISAKMP policy configuration.
clear crypto isakmp sa	Clears the IKE runtime SA database.
show running-config crypto isakmp	Displays all the active configuration.

crypto isakmp policy hash

To specify the hash algorithm for an IKE policy, use the **crypto isakmp policy hash** command in global configuration mode. To reset the hash algorithm to the default value of SHA-1, use the **no** form of this command.

crypto isakmp policy *priority* hash {**md5** | **sha**}

no crypto isakmp policy *priority* **hash**

Syntax Description

md5	Specifies that MD5 (HMAC variant) as the hash algorithm for the IKE policy.
priority	Uniquely identifies and assigns a priority to the policy. Use an integer from 1 to 65,534, with 1 being the highest priority and 65,534 the lowest.
sha	Specifies SHA-1 (HMAC variant) as the hash algorithm for the IKE policy.

Defaults

The default hash algorithm is SHA-1 (HMAC variant).

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	The **isakmp policy hash** command was introduced.
7.2.(1)	The **crypto isakmp policy hash** command replaced the **isakmp policy hash** command**.**

Usage Guidelines

IKE policies define a set of parameters to be used during IKE negotiation.

There are two hash algorithm options: SHA-1 and MD5. MD5 has a smaller digest and is considered to be slightly faster than SHA-1.

Examples

The following example, entered in global configuration mode, shows how to use the **crypto isakmp policy hash** command. This example specifies the MD5 hash algorithm for the IKE policy, with the priority number of 40.

```
hostname(config)# crypto isakmp policy 40 hash md5
```

Related Commands

Command	Description
clear configure crypto isakmp	Clears all the ISAKMP configuration.
clear configure crypto isakmp policy	Clears all ISAKMP policy configuration.
clear crypto isakmp sa	Clears the IKE runtime SA database.
show running-config crypto isakmp	Displays all the active configuration.

crypto isakmp policy lifetime

To specify the lifetime of an IKE security association before it expires, use the **crypto isakmp policy lifetime** command in global configuration mode. To reset the security association lifetime to the default value of 86,400 seconds (one day), use the **no** form of this command .

crypto isakmp policy *priority* **lifetime** *seconds*

no crypto isakmp policy *priority* **lifetime**

Syntax Description

priority	Uniquely identifies the IKE policy and assigns a priority to the policy. Use an integer from 1 to 65,534, with 1 being the highest priority and 65,534 the lowest.
seconds	Specifies how many seconds each security association should exist before expiring. To propose a finite lifetime, use an integer from 120 to 2147483647 seconds. Use 0 seconds for an infinite lifetime.

Defaults

The default value is 86,400 seconds (one day).

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	The **isakmp policy lifetime** command was introduced.
7.2.(1)	The **crypto isakmp policy lifetime** command replaced the **isakmp policy lifetime** command**.**

Usage Guidelines

When IKE begins negotiations, it seeks to agree upon the security parameters for its own session. Then the security association at each peer refers to the agreed-upon parameters. The peers retain the security association until the lifetime expires. You can specify an infinite lifetime if the peer does not propose a lifetime. Before a security association expires, subsequent IKE negotiations can use it, which can save time when setting up new IPsec security associations. The peers negotiate new security associations before current security associations expire.

With longer lifetimes, the ASA sets up future IPsec security associations more quickly. Encryption strength is great enough to ensure security without using very fast rekey times, on the order of every few minutes. We recommend that you accept the default.

Note If the IKE security association is set to an infinite lifetime, but the peer proposes a finite lifetime, then the negotiated finite lifetime from the peer is used.

Examples

The following example, entered in global configuration mode, sets the lifetime of the IKE security association to 50,4000 seconds (14 hours) for the IKE policy with the priority number of 40:

```
hostname(config)# crypto isakmp policy 40 lifetime 50400
```

The following example, entered in global configuration mode, sets the IKE security association to an infinite lifetime:

```
hostname(config)# crypto isakmp policy 40 lifetime 0
```

Related Commands

clear configure crypto isakmp	Clears all the ISAKMP configuration.
clear configure crypto isakmp policy	Clears all ISAKMP policy configuration.
clear crypto isakmp sa	Clears the IKE runtime SA database.
show running-config crypto isakmp	Displays all the active configuration.

crypto isakmp reload-wait

To enable waiting for all active sessions to voluntarily terminate before rebooting the ASA, use the **crypto isakmp reload-wait** command in global configuration mode. To disable waiting for active sessions to terminate and to proceed with a reboot of the ASA, use the **no** form of this command.

crypto isakmp reload-wait

no crypto isakmp reload-wait

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	The **isakmp reload-wait** command was introduced.
7.2.(1)	The **crypto isakmp reload-wait** command replaced the **isakmp reload-wait** command**.**
9.0(1)	Support for multiple context mode was added.

Examples

The following example, entered in global configuration mode, tells the ASA to wait until all active sessions have terminated before rebooting:

```
hostname(config)# crypto isakmp reload-wait
```

Related Commands

Command	Description
clear configure crypto isakmp	Clears all the ISAKMP configuration.
clear configure crypto isakmp policy	Clears all ISAKMP policy configuration.
clear crypto isakmp sa	Clears the IKE runtime SA database.
show running-config crypto isakmp	Displays all the active configuration.

crypto key generate rsa

To generate RSA key pairs for identity certificates, use the **crypto key generate rsa** command in global configuration mode.

crypto key generate rsa [**usage-keys | general-keys**] [**label** *key-pair-label*] [**modulus** *size*] [**noconfirm**] **dsa** [**label name | elliptic-curve** [**256 | 384 | 521**]

Syntax Description

dsa [**label name**]	Uses the Suite B EDCSA algorithms when generating a keypair.
elliptic-curve [**256	384	521**]	Uses the Suite B EDCSA algorithms when generating a keypair.
general-keys	Generates a single pair of general purpose keys. This is the default key-pair type.
label *key-pair-label*	Specifies the name to be associated with the key pair(s). This key pair must be uniquely labeled. If you attempt to create another key pair with the same label, the ASA displays a warning message. If no label is provided when the key is generated, the key pair is statically named Default-RSA-Key.
modulus *size*	Specifies the modulus size of the key pair(s): 512, 768, 1024, and 2048. The default modulus size is 1024.
noconfirm	Suppresses all interactive prompting.
usage-keys	Generates two key pairs, one for signature use and one for encryption use. This implies that two certificates for the corresponding identity are required.

Defaults

The default key-pair type is **general key**. The default modulus size is 1024.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Use the **crypto key generate rsa** command to generate RSA key pairs to support SSL, SSH, and IPsec connections. The generated key pairs are identified by labels that you can provide as part of the command syntax. Trustpoints that do not reference a key pair can use the default one, Default-RSA-Key. SSH connections always use this key. This does not affect SSL, because SSL generates its own certificate or key dynamically, unless a trustpoint has one configured.

Note The amount of NVRAM space for storing key pairs varies depending on the ASA platform. You may reach a limit if you generate more than 30 key pairs.

Note The 4096-bit RSA keys are only supported on the ASA5580, 5585, or later platforms.

Caution Many SSL connections using identity certificates with RSA key pairs that exceed 1024 bits can cause a high CPU usage on the ASA and rejected clientless logins.

Examples

The following example, entered in global configuration mode, generates an RSA key pair with the label mypubkey:

```
hostname(config)# crypto key generate rsa label mypubkey
INFO: The name for the keys will be: mypubkey
Keypair generation process
hostname(config)#
```

The following example, entered in global configuration mode, inadvertently attempts to generate a duplicate RSA key pair with the label mypubkey:

```
hostname(config)# crypto key generate rsa label mypubkey
WARNING: You already have RSA keys defined named mypubkey
Do you really want to replace them? [yes/no] no
ERROR: Failed to create new RSA keys named mypubkey
hostname(config)#
```

The following example, entered in global configuration mode, generates an RSA key pair with the default label:

```
hostname(config)# crypto key generate rsa
INFO: The name for the keys will be: <Default-RSA-Key>
Keypair generation process begin. Please wait...
hostname(config)#
```

The following example, entered in global configuration mode, generates a warning message because there is not enough space to save the RSA keypair:

```
hostname(config)# crypto key generate rsa label mypubkey mod 2048
INFO: The name for the keys will be: mypubkey
Keypair generation process begin. Please wait...
NV RAM will not have enough space to save keypair mypubkey. Remove any unnecessary
keypairs and save the running config before using this keypair.
hostname(config)#
```

Related Commands

Command	Description
crypto key zeroize	Removes RSA key pairs.
show crypto key	Displays the RSA key pairs.

crypto key zeroize

To remove the key pairs of the indicated type (rsa or dsa), use the **crypto key zeroize** command in global configuration mode.

crypto key zeroize {**rsa** | **dsa**} [**label** *key-pair-label*] [**default**] [**noconfirm**]

Syntax Description

default	Removes RSA key pairs with no labels. This keyword is legal only with RSA key pairs.
dsa	Specifies DSA as the key type.
label *key-pair-label*	Removes the key pairs of the indicated type (**rsa** or **dsa**). If you do not provide a label, the ASA removes all key pairs of the indicated type.
noconfirm	Suppresses all interactive prompting.
rsa	Specifies RSA as the key type.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example, entered in global configuration mode, removes all RSA key pairs:

```
hostname(config)# crypto key zeroize rsa
WARNING: All RSA keys will be removed.
WARNING: All router certs issued using these keys will also be removed.

Do you really want to remove these keys? [yes/no] y
hostname(config)#
```

Related Commands

Command	Description
crypto key generate dsa	Generates DSA key pairs for identity certificates.
crypto key generate rsa	Generates RSA key pairs for identity certificates.

crypto large-cert-acceleration enable

To enable the ASA to perform 2048-bit RSA key operations in hardware, use the **crypto large-cert-acceleration enable** command in global configuration mode. To perform 2048-bit RSA key operations in software, use the **no crypto large-cert-acceleration enable** command.

crypto large-cert-acceleration enable

no crypto large-cert-acceleration enable

Syntax Description

This command has no keywords or arguments.

Defaults

By default, 2048-bit RSA key operations are performed in software.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
8.2(3)	This command was introduced.

Usage Guidelines

This command is only available on the ASA 5510, ASA 5520, ASA 5540, and 5550. The command is not available on the ASA 5580.

Examples

The following example shows that 2048-bit RSA key operations have been enabled in hardware:

```
hostname (config)# show running-config crypto large-cert-acceleration
crypto large-cert-acceleration enable
hostname (config)#
```

Related Commands

Command	Description
clear configure crypto	Clears the 2048-bit RSA key configuration with the rest of the crypto configuration.
show running-config crypto	Shows the 2048-bit RSA key configuration with the rest of the crypto configuration.

crypto map interface

To apply a previously defined crypto map set to an interface, use the **crypto map interface** command in global configuration mode. To remove the crypto map set from the interface, use the **no** form of this command.

crypto map *map-name* **interface** *interface-name* [**ipv6-local-address** *ipv6-address*]

no crypto map *map-name* **interface** *interface-name* [**ipv6-local-address** *ipv6-address*]

Syntax Description

interface-name	Specifies the interface for the ASA to use for establishing tunnels with VPN peers. If ISAKMP is enabled, and you are using a CA to obtain certificates, this should be the interface with the address specified in the CA certificates.
map-name	Specifies the name of the crypto map set.
ipv6-local-address *ipv6-address*	Specifies an IPv6 address.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.3(1)	The **ipv6-local-address** keyword was added.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

Use this command to assign a crypto map set to any active ASA interface. The ASA supports IPsec termination on any and all active interfaces. You must assign a crypto map set to an interface before that interface can provide IPsec services.

You can assign only one crypto map set to an interface. If multiple crypto map entries have the same map name but a different sequence number, they are part of the same set and are all applied to the interface. The ASA evaluates the crypto map entry with the lowest sequence number first.

Use the **ipv6-local-address** keyword when you have multiple IPv6 addresses configured on an interface and are configuring the ASA to support LAN-to-LAN VPN tunnels in an IPv6 environment.

Note The ASA lets you change crypto map, dynamic map, and IPsec settings on the fly. If you do so, the ASA brings down only the connections affected by the change. If you change an existing access list associated with a crypto map, specifically by deleting an entry within the accesslist, the result is that only the associated connection is brought down. Connections based on other entries in the access list are not affected.

Every static crypto map must define three parts: an access list, a transform set, and an IPsec peer. If one of these is missing, the crypto map is incomplete and the ASA moves on to the next entry. However, if the crypto map matches the access list but not either or both of the other two requirements, this ASA drops the traffic.

Use the **show running-config crypto map** command to ensure that every crypto map is complete. To fix an incomplete crypto map, remove the crypto map, add the missing entries, and reapply it.

Examples

The following example, entered in global configuration mode, assigns the crypto map set named mymap to the outside interface. When traffic passes through the outside interface, the ASA evaluates it using all the crypto map entries in the mymap set. When outbound traffic matches an access list in one of the mymap crypto map entries, the ASA forms a security association using that crypto map entry's configuration.

```
hostname(config)# crypto map mymap interface outside
```

The following example shows the minimum required crypto map configuration:

```
hostname(config)# crypto map mymap 10 ipsec-isakmp
hostname(config)# crypto map mymap 10 match address 101
hostname(config)# crypto map mymap set transform-set my_t_set1
hostname(config)# crypto map mymap set peer 10.0.0.1
```

Related Commands

Command	Description
clear configure crypto map	Clears all configuration for all crypto maps.
show running-config crypto map	Displays the crypto map configuration.

crypto map ipsec-isakmp dynamic

To require a given crypto map entry to refer to a preexisting dynamic crypto map, use the **crypto map ipsec-isakmp dynamic** command in global configuration mode. To remove the cross-reference, use the **no** form of this command.

Use the **crypto dynamic-map** command to create dynamic crypto map entries. After you create a dynamic crypto map set, use the **crypto map ipsec-isakmp dynamic** command to add the dynamic crypto map set to a static crypto map.

crypto map *map-name seq-num* **ipsec-isakmp dynamic** *dynamic-map-name*

no crypto map *map-name seq-num* **ipsec-isakmp dynamic** *dynamic-map-name*

Syntax Description

dynamic-map-name	Specifies the name of the crypto map entry that refers to a preexisting dynamic crypto map.
ipsec-isakmp	Indicates that IKE establishes the IPsec security associations for this crypto map entry.
map-name	Specifies the name of the crypto map set.
seq-num	Specifies the number you assign to the crypto map entry.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was modified to remove the **ipsec-manual** keyword.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

After you define crypto map entries, you can use the **crypto map interface** command to assign the dynamic crypto map set to interfaces.

Dynamic crypto maps provide two functions: filtering/classifying traffic to protect, and defining the policy to apply to that traffic. The first use affects the flow of traffic on an interface; the second affects the negotiation performed (via IKE) on behalf of that traffic.

IPsec dynamic crypto maps identify the following:

- The traffic to protect
- IPsec peer(s) with which to establish a security association

- Transform sets to use with the protected traffic
- How to use or manage keys and security associations

A crypto map set is a collection of crypto map entries, each with a different sequence number (*seq-num*) but the same map name. Therefore, for a given interface, you could have certain traffic forwarded to one peer with specified security applied to that traffic, and other traffic forwarded to the same or a different peer with different IPsec security applied. To accomplish this, you create two crypto map entries, each with the same map name, but each with a different sequence number.

The number you assign as the *seq-num* argument should not be arbitrary. This number ranks multiple crypto map entries within a crypto map set. A crypto map entry with a lower sequence number is evaluated before a map entry with a higher sequence number; that is, the map entry with the lower number has a higher priority.

Note When you link the crypto map to a dynamic crypto map, you must specify the dynamic crypto map. This links the crypto map to an existing dynamic crypto map that was previously defined using the **crypto dynamic-map** command. Now any changes you make to the crypto map entry after it has been converted will not take affect. For example, a change to the set peer setting does not take effect. However, the ASA stores the change while it is up. When the dynamic crypto map is converted back to the crypto map, the change is effective and appears in the output of the **show running-config crypto map** command. The ASA maintains these settings until it reboots.

Examples

The following command, entered in global configuration mode, configures the crypto map mymap to refer to a dynamic crypto map named test:

```
hostname(config)# crypto map mymap ipsec-isakmp dynamic test
hostname(config)#
```

Related Commands

Command	Description
clear configure crypto map	Clears all configuration for all crypto maps.
show running-config crypto map	Displays the crypto map configuration.

crypto map match address

To assign an access list to a crypto map entry, use the **crypto map match address** command in global configuration mode. To remove the access list from a crypto map entry, use the **no** form of this command.

crypto map *map-name seq-num* **match address** *acl_name*

no crypto map *map-name seq-num* **match address** *acl_name*

Syntax Description

acl_name	Specifies the name of the encryption access list. This name should match the name argument of the named encryption access list being matched.
map-name	Specifies the name of the crypto map set.
seq-num	Specifies the number you assign to the crypto map entry.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

This command is required for all static crypto maps. If you are defining a dynamic crypto map (with the **crypto dynamic-map** command), this command is not required but is strongly recommended.

Use the **access-list** command to define the access lists. The access list hit counts only increase when the tunnel initiates. After the tunnel is up, the hit counts do not increase on a per-packet flow. If the tunnel drops and then reinitiates, the hit count will be increased.

The ASA uses the access lists to differentiate the traffic to protect with IPsec crypto from the traffic that does not need protection. It protects outbound packets that match a permit ACE, and ensures that inbound packets that match a permit ACE have protection.

When the ASA matches a packet to a deny statement, it skips the evaluation of the packet using the remaining ACEs in the crypto map, and resumes evaluation of the packet using the ACEs in the next crypto map in sequence. *Cascading ACLs* involves the use of deny ACEs to bypass evaluation of the remaining ACEs in an ACL, and the resumption of evaluation of traffic using the ACL assigned to the next crypto map in the crypto map set. Because you can associate each crypto map with different IPsec

settings, you can use deny ACEs to exclude special traffic from further evaluation in the corresponding crypto map, and match the special traffic to permit statements in another crypto map to provide or require different security.

Note The crypto access list does not determine whether to permit or deny traffic through the interface. An access list applied directly to the interface with the **access-group** command makes that determination.

In transparent mode, the destination address should be the IP address of the ASA, the management address. Only tunnels to the ASA are allowed in transparent mode.

Related Commands

Command	Description
clear configure crypto map	Clears all configuration for all crypto maps.
show running-config crypto map	Displays the crypto map configuration.

crypto map set connection-type

To specify the connection type for the backup Site-to-Site feature for this crypto map entry, use the **crypto map set connection-type** command in global configuration mode. To return to the default setting, use the **no** form of this command.

crypto map *map-name seq-num* **set connection-type** {**answer-only** | **originate-only** | **bidirectional**}

no crypto map *map-name seq-num* **set connection-type** {**answer-only** | **originate-only** | **bidirectional**}

Syntax Description

answer-only	Specifies that this peer only responds to inbound IKE connections first during the initial proprietary exchange to determine the appropriate peer to connect to.
bidirectional	Specifies that this peer can accept and originate connections based on this crypto map entry. This is the default connection type for all Site-to-Site connections.
map-name	Specifies the name of the crypto map set.
originate-only	Specifies that this peer initiates the first proprietary exchange to determine the appropriate peer to connect to.
seq-num	Specifies the number you assign to the crypto map entry.
set connection-type	Specifies the connection type for the backup Site-to-Site feature for this crypto map entry. There are three types of connections: answer-only, originate-only, and bidirectional.

Defaults

The default setting is bidirectional.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0	This command was introduced.
9.0	Support for multiple context mode was added.

Usage Guidelines

The **crypto map set connection-type** command specifies the connection types for the backup LAN-to-LAN feature. It allows multiple backup peers to be specified at one end of the connection.

This feature works only between the following platforms:

- Two Cisco ASA 5500 series
- A Cisco ASA 5500 series and a Cisco VPN 3000 concentrator
- A Cisco ASA 5500 series and a security appliance running Cisco PIX security appliance software Version 7.0, or higher

To configure a backup LAN-to-LAN connection, we recommend that you configure one end of the connection as originate-only using the **originate-only** keyword, and the end with multiple backup peers as answer-only using the **answer-only** keyword. On the originate-only end, use the **crypto map set peer** command to order the priority of the peers. The originate-only ASA attempts to negotiate with the first peer in the list. If that peer does not respond, the ASA works its way down the list until either a peer responds or there are no more peers in the list.

When configured in this way, the originate-only peer initially attempts to establish a proprietary tunnel and negotiate with a peer. Thereafter, either peer can establish a normal LAN-to-LAN connection and data from either end can initiate the tunnel connection.

In transparent firewall mode, you can see this command but the connection-type value cannot be set to anything other than answer-only for crypto map entries that are part of a crypto map that has been attached to the interface.

Table 12-1 lists all supported configurations. Other combinations may result in unpredictable routing issues.

Table 12-1 Supported Backup LAN-to-LAN Connection Types

Remote Side	Central Side
Originate-Only	Answer-Only
Bi-Directional	Answer-Only
Bi-Directional	Bi-Directional

Examples

The following example, entered in global configuration mode, configures the crypto map mymap and sets the connection-type to originate-only.

```
hostname(config)# crypto map mymap 10 set connection-type originate-only
hostname(config)#
```

Related Commands

Command	Description
clear configure crypto map	Clears all configuration for all crypto maps.
show running-config crypto map	Displays the crypto map configuration.

crypto map set df-bit

To set the per-signature algorithm (SA) do-not-fragment (DF) policy, use the **crypto map set df-bit** command in global configuration mode. To disable the DF policy, use the **no** form of this command.

crypto map *name priority* **set df-bit** [**clear-df** | **copy-df** | **set-df**]

no crypto map *name priority* **set df-bit** [**clear-df** | **copy-df** | **set-df**]

Syntax Description

name	Specifies the name of the crypto map set.
priority	Specifies the priority that you assign to the crypto map entry.

Defaults

The default setting is off.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

The original DF policy command is retained and acts as a global policy setting on an interface, but it is superseded for an SA by the **crypto map** command.

crypto map set ikev2 pre-shared-key

To specify a preshared key for AnyConnect IKEv2 connections, the **crypto map set ikev2 pre-shared-key** command in global configuration mode. To return to the default setting, use the **no** form of this command.

crypto map *map-name seq-num* **set ikev2 pre-shared-key** *key*

no crypto map *map-name seq-num* **set ikev2 pre-shared-key** *key*

Syntax Description

key	Alphanumeric string from 1 to 128 characters.
map-name	Specifies the name of the crypto map set.
seq-num	Specifies the number that you assign to the crypto map entry.

Defaults

There is no default value or behavior.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
8.4(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Examples

The following example configures the preshared key SKTIWHT:

```
hostname(config)# crypto map crypto_map_example set ikev2 pre-shared-key SKTIWHT
```

Related Commands

Command	Description
clear configure crypto map	Clears all configuration for all crypto maps.
show running-config crypto map	Displays the crypto map configuration.

crypto map set inheritance

To set the granularity (single or multiple) of security associations generated for this crypto map entry, use the **set inheritance** command in global configuration mode. To remove the inheritance setting for this crypto map entry, use the **no** form of this command.

crypto map *map-name seq-num* **set inheritance** {**data** | **rule**}

no crypto map *map-name seq-num* **set inheritance** {**data** | **rule**}

Syntax Description

data	Specifies one tunnel for every address pair within the address ranges specified in the rule.
map-name	Specifies the name of the crypto map set.
rule	Specifies one tunnel for each ACL entry associated with this crypto map. This is the default.
seq-num	Specifies the number that you assign to the crypto map entry.
set inheritance	Specifies the type of inheritance: **data or rule**. Inheritance allows a single security association (SA) to be generated for each security policy database (SPD) rule or multiple security SAs for each address pair in the range.

Defaults

The default value is **rule**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

This command works only when the ASA is initiating the tunnel, not when responding to a tunnel. Using the data setting may create a large number of IPsec SAs. This consumes memory and results in fewer overall tunnels. You should use the data setting only for extremely security-sensitive applications.

Examples

The following example, entered in global configuration mode, configures the crypto map mymap and sets the inheritance type to data:

```
hostname(config)# crypto map mymap 10 set inheritance data
hostname(config)#
```

Related Commands

Command	Description
clear configure crypto map	Clears all configuration for all crypto maps.
show running-config crypto map	Displays the crypto map configuration.

crypto map set nat-t-disable

To disable NAT-T for connections based on this crypto map entry, use the **crypto map set nat-t-disable** command in global configuration mode. To enable NAT-T for this crypto map entry, use the **no** form of this command.

crypto map *map-name seq-num* **set nat-t-disable**

no crypto map *map-name seq-num* **set nat-t-disable**

Syntax Description

map-name	Specifies the name of the crypto map set.
seq-num	Specifies the number you assign to the crypto map entry.

Defaults

The default setting for this command is not on (therefore NAT-T is enabled by default).

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

Use the **isakmp nat-traversal** command to globally enable NAT-T. Then you can use the **crypto map set nat-t-disable** command to disable NAT-T for specific crypto map entries.

Examples

The following command, entered in global configuration mode, disables NAT-T for the crypto map entry named mymap:

```
hostname(config)# crypto map mymap 10 set nat-t-disable
hostname(config)#
```

Related Commands

Command	Description
clear configure crypto map	Clears all configuration for all crypto maps.
isakmp nat-traversal	Enables NAT-T for all connections.
show running-config crypto map	Displays the crypto map configuration.

crypto map set peer

To specify an IPsec peer in a crypto map entry, use the **crypto map set peer** command in global configuration mode. Use the **no** form of this command to remove an IPsec peer from a crypto map entry.

crypto map *map-name seq-num* **set peer** {*ip_address* | *hostname*}{*...ip_address10* | *hostname10*}

no crypto map *map-name seq-num* **set peer** {*ip_address* | *hostname*}{*...ip_address10* | *hostname10*}

Syntax Description

hostname	Specifies a peer by its hostname as defined by the ASA **name** command.
ip_address	Specifies a peer by its IP address (IPv4 or IPv6).
map-name	Specifies the name of the crypto map set.
peer	Specifies an IPsec peer in a crypto map entry either by hostname or IP address (IPv4 or IPv6). Multiple peers are not supported for IKEv2.
seq-num	Specifies the number that you assign to the crypto map entry.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was modified to allow up to 10 peer addresses.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

This command is required for all static crypto maps. If you are defining a dynamic crypto map (with the **crypto dynamic-map** command), this command is not required, and in most cases is not used because the peer is usually unknown.

Configuring multiple peers is equivalent to providing a fallback list. For each tunnel, the ASA attempts to negotiate with the first peer in the list. If that peer does not respond, the ASA works its way down the list until either a peer responds or there are no more peers in the list. You can set up multiple peers only when using the backup LAN-to-LAN feature (that is, when the crypto map connection type is originate-only). For more information, see the **crypto map set connection-type** command.

Note Multiple peers are not supported for IKEv2.

Examples

The following example, entered in global configuration mode, shows a crypto map configuration using IKE to establish the security associations. In this example, you can set up a security association to either the peer at 10.0.0.1 or the peer at 10.0.0.2:

```
hostname(config)# crypto map mymap 10 ipsec-isakmp
hostname(config)# crypto map mymap 10 match address 101
hostname(config)# crypto map mymap 10 set transform-set my_t_set1
hostname(config)# crypto map mymap 10 set peer 10.0.0.1 10.0.0.2
```

Related Commands

Command	Description
clear configure crypto map	Clears all configuration for all crypto maps.
show running-config crypto map	Displays the crypto map configuration.

crypto map set pfs

Use the **crypto map set pfs** command in global configuration mode to set IPsec to ask for PFS when requesting new security associations for this crypto map entry or that IPsec requires PFS when receiving requests for new security associations. To specify that IPsec should not request PFS, use the **no** form of this command.

crypto map *map-name seq-num* **set pfs** [**group1 | group2 | group5 | group14 | group19 | group20 | group21 | group24**]

no crypto map *map-name seq-num* **set pfs** [**group1 | group2 | group5 | group14 | group19 | group20 | group21 | group24**]

Syntax Description

group1	Specifies that IPsec should use the 768-bit Diffie-Hellman prime modulus group when performing the new Diffie-Hellman exchange.
group2	Specifies that IPsec should use the 1024-bit Diffie-Hellman prime modulus group when performing the new Diffie-Hellman exchange.
group5	Specifies that IPsec should use the 1536-bit Diffie-Hellman prime modulus group when performing the new Diffie-Hellman exchange.
map-name	Specifies the name of the crypto map set.
seq-num	Specifies the number that you assign to the crypto map entry.

Defaults

By default PFS is not set.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was modified to add Diffie-Hellman group 7.
8.0(4)	The **group 7** command option was deprecated. Attempts to configure group 7 will generate an error message and use group 5 instead.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

With PFS, each time a new security association is negotiated, a new Diffie-Hellman exchange occurs, which requires additional processing time. PFS adds another level of security because if one key is ever cracked by an attacker, only the data sent with that key is compromised.

During negotiation, this command causes IPsec to request PFS when requesting new security associations for the crypto map entry. If the **set pfs** statement does not specify a group, the ASA sends the default (group2).

If the peer initiates the negotiation and the local configuration specifies PFS, the peer must perform a PFS exchange or the negotiation fails. If the local configuration does not specify a group, the ASA assumes a default of group2. If the local configuration specifies group2 or group5, that group must be part of the peer's offer or the negotiation fails.

For a negotiation to succeed, PFS has to be set on both ends of the LAN to LAN tunnel (with or without the Diffie-Hellman group). If set, the groups have to be an exact match. The ASA does not accept just any offer of PFS from the peer.

The 1536-bit Diffie-Hellman prime modulus group, group5, provides more security than group1 or group2, but requires more processing time than the other groups.

When interacting with the Cisco VPN Client, the ASA does not use the PFS value, but instead uses the value negotiated during Phase 1.

Examples

The following example, entered in global configuration mode, specifies that PFS should be used whenever a new security association is negotiated for the crypto map mymap 10:

```
hostname(config)# crypto map mymap 10 ipsec-isakmp
hostname(config)# crypto map mymap 10 set pfs group2
```

Related Commands

Command	Description
clear isakmp sa	Deletes the active IKE security associations.
clear configure crypto map	Clears all configuration for all crypto maps.
show running-config crypto map	Displays the crypto map configuration.
tunnel-group	Configures tunnel groups and their parameters.

crypto map set ikev1 phase1-mode

To specify the IKEv1 mode for phase 1 when initiating a connection to either main or aggressive, use the **crypto map set ikev1 phase1-mode** command in global configuration mode. To remove the setting for phase 1 IKEv1 negotiations, use the **no** form of this command.

crypto map *map-name seq-num* **set ikev1 phase1-mode** {**main** | **aggressive** [**group1** | **group2** | **group5**]}

no crypto map *map-name seq-num* **set ikev1 phase1-mode** {**main** | **aggressive** [**group1** | **group2** | **group5**]}

Syntax Description

aggressive	Specifies aggressive mode for Phase 1 IKEv1 negotiations.
group1	Specifies that IPsec should use the 768-bit Diffie-Hellman prime modulus group when performing the new Diffie-Hellman exchange.
group2	Specifies that IPsec should use the 1024-bit Diffie-Hellman prime modulus group when performing the new Diffie-Hellman exchange.
group5	Specifies that IPsec should use the 1536-bit Diffie-Hellman prime modulus group when performing the new Diffie-Hellman exchange.
main	Specifies main mode for Phase 1 IKEv1 negotiations.
map-name	Specifies the name of the crypto map set.
seq-num	Specifies the number that you assign to the crypto map entry.

Defaults

The default Phase 1 mode is **main**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.0(4)	The **group 7** command option was deprecated. Attempts to configure group 7 will generate an error message and use group 5 instead.
8.4(1)	The **ikev1** keyword was added.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

This command works only in initiator mode; not in responder mode. Including a Diffie-Hellman group with aggressive mode is optional. If one is not included, the ASA uses group 2.

Examples

The following example, entered in global configuration mode, configures the crypto map my map and sets the phase one mode to aggressive using group 2:

```
hostname(config)# crypto map mymap 10 set ikev1 phase1mode aggressive group2
hostname(config)#
```

Related Commands

Command	Description
clear isakmp sa	Delete the active IKE security associations.
clear configure crypto map	Clears all configuration for all crypto maps.
show running-config crypto map	Displays the crypto map configuration.

crypto map set ikev2 phase1-mode

To specify the IKEv2 mode for Phase 1 when initiating a connection to either main or aggressive, use the **crypto map set ikev2 phase1-mode** command in global configuration mode. To remove the setting for Phase 1 IKEv2 negotiations, use the **no** form of this command.

crypto map *map-name seq-num* **set ikev2 phase1-mode** {**main** | **aggressive** [**group1** | **group2** | **group5**]}

no crypto map *map-name seq-num* **set ikev2 phase1-mode** {**main** | **aggressive** [**group1** | **group2** | **group5**]}

Syntax Description

aggressive	Specifies aggressive mode for Phase 1 IKEv2 negotiations.
group1	Specifies that IPsec should use the 768-bit Diffie-Hellman prime modulus group when performing the new Diffie-Hellman exchange.
group2	Specifies that IPsec should use the 1024-bit Diffie-Hellman prime modulus group when performing the new Diffie-Hellman exchange.
group5	Specifies that IPsec should use the 1536-bit Diffie-Hellman prime modulus group when performing the new Diffie-Hellman exchange.
main	Specifies main mode for Phase 1 IKEv2 negotiations.
map-name	Specifies the name of the crypto map set.
seq-num	Specifies the number that you assign to the crypto map entry.

Defaults

The default Phase 1 mode is **main**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.0(4)	The **group 7** command option was deprecated. Attempts to configure group 7 will generate an error message and use group 5 instead.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

This command works only in initiator mode; not in responder mode. Including a Diffie-Hellman group with aggressive mode is optional. If one is not included, the ASA uses group 2.

Examples

The following example, entered in global configuration mode, configures the crypto map my map and sets the Phase 1 mode to aggressive, using group 2.

```
hostname(config)# crypto map mymap 10 set ikev2 phase1mode aggressive group2
hostname(config)#
```

Related Commands

Command	Description
clear isakmp sa	Delete the active IKE security associations.
clear configure crypto map	Clears all configuration for all crypto maps.
show running-config crypto map	Displays the crypto map configuration.

crypto map set reverse-route

To enable reverse route injection for any connection based on this crypto map entry, use the **crypto map set reverse-route** command in global configuration mode. To disable reverse route injection for any connection based this crypto map entry, use the **no** form of this command.

crypto map *map-name seq-num* **set reverse-route**

no crypto map *map-name seq-num s***et reverse-route**

Syntax Description

map-name	Specifies the name of the crypto map set.
seq-num	Specifies the number that you assign to the crypto map entry.

Defaults

The default setting for this command is off.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

The ASA can automatically add static routes to the routing table and announce these routes to its private network or border routers using OSPF.

Examples

The following example, entered in global configuration mode, enables reverse route injection for the crypto map named mymap.

```
hostname(config)# crypto map mymap 10 set reverse-route
hostname(config)#
```

Related Commands

Command	Description
clear configure crypto map	Clears all configuration for all crypto maps.
show running-config crypto map	Displays the crypto map configuration.

crypto map set security-association lifetime

To override (for a particular crypto map entry) the global lifetime value, which is used when negotiating IPsec security associations, use the **crypto map set security-association lifetime** command in global configuration mode. To reset a crypto map entry's lifetime value to the global value, use the **no** form of this command.

crypto map *map-name seq-num* **set security-association lifetime** {**seconds** *seconds* | **kilobytes** *kilobytes*}

no crypto map *map-name seq-num* **set security-association lifetime** {**seconds** *seconds* | **kilobytes** *kilobytes*}

Syntax Description

kilobytes	Specifies the volume of traffic (in kilobytes) that can pass between peers using a given security association before that security association expires. The default is 4,608,000 kilobytes.
map-name	Specifies the name of the crypto map set.
seconds	Specifies the number of seconds a security association will live before it expires. The default is 28,800 seconds (eight hours).
seq-num	Specifies the number that you assign to the crypto map entry.

Defaults

The default number of kilobytes is 4,608,000; the default number of seconds is 28,800.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

The crypto map's security associations are negotiated according to the global lifetimes.

IPsec security associations use shared secret keys. These keys and their security associations time out together.

Assuming that the particular crypto map entry has lifetime values configured, when the ASA requests new security associations during security association negotiation, it specifies its crypto map lifetime values in the request to the peer; it uses these values as the lifetime of the new security associations.

When the ASA receives a negotiation request from the peer, it uses the smaller of the lifetime values proposed by the peer or the locally configured lifetime values as the lifetime of the new security associations.

There are two lifetimes: a timed lifetime and a traffic-volume lifetime. The session keys and security association expire after the first of these lifetimes is reached. You can specify both with one command.

Note The ASA lets you change crypto map, dynamic map, and IPsec settings on-the-fly. If you do so, the ASA brings down only the connections affected by the change. If you change an existing access list associated with a crypto map, specifically by deleting an entry within the access list, the result is that only the associated connection is brought down. Connections based on other entries in the access list are not affected.

To change the timed lifetime, use the **crypto map set security-association lifetime seconds** command. The timed lifetime causes the keys and security association to time out after the specified number of seconds have passed.

Examples

The following command, entered in global configuration mode, specifies a security association lifetime in seconds and kilobytes for the crypto map mymap:

```
hostname(config)# crypto map mymap 10 set security-association lifetime seconds 1400
kilobytes 3000000
hostname(config)#
```

Related Commands

Command	Description
clear configure crypto map	Clears all configuration for all crypto maps.
show running-config crypto map	Displays the crypto map configuration.

crypto map set ikev1 transform-set

To specify the IKEv1 transform sets to use in a crypto map entry, use the **crypto map set transform-set** command in global configuration mode. To remove the names of the transform sets from a crypto map entry, use the **no** form of this command with the specified transform set name. To specify all or none of the transform sets and remove the crypto map entry, use the **no** form of the command.

crypto map *map-name seq-num* **set transform-set** *transform-set-name1* [*… transform-set-name11*]

no crypto map *map-name seq-num* **set transform-set** *transform-set-name1* [*… transform-set-name11*]

no crypto map *map-name seq-num* **set transform-set**

Syntax Description

map-name	Specifies the name of the crypto map set.
seq-num	Specifies the sequence number that corresponds to the crypto map entry.
transform-set-name1 *transform-set-name11*	Specifies one or more names of the transform sets. Any transform sets named in this command must be defined in the **crypto ipsec transform-set** command. Each crypto map entry supports up to 11 transform sets.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	The maximum number of transform sets in a crypto map entry was modified.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

This command is required for all crypto map entries.

The peer at the opposite end of the IPsec initiation uses the first matching transform set for the security association. If the local ASA initiates the negotiation, the order specified in the **crypto map** command determines the order in which the ASA presents the contents of the transform sets to the peer. If the peer initiates the negotiation, the local ASA uses the first transform set in the crypto map entry that matches the IPsec parameters sent by the peer.

If the peer at the opposite end of the IPsec initiation fails to match the values of the transform sets, IPsec does not establish a security association. The initiator drops the traffic because there is no security association to protect it.

To change the list of transform sets, specify a new list to replace the old one.

If you use this command to modify a crypto map, the ASA modifies only the crypto map entry with the same sequence number you specify. For example, the ASA inserts the transform set named 56des-sha in the last position if you enter the following commands:

```
hostname(config)# crypto map map1 1 set transform-set 128aes-md5 128aes-sha 192aes-md5
hostname(config)# crypto map map1 1 transform-set 56des-sha
hostname(config)#
```

The response to the following command shows the cumulative effect of the previous two commands:

```
hostname(config)# show running-config crypto map
crypto map map1 1 set transform-set 128aes-md5 128aes-sha 192aes-md5 56des-sha
hostname(config)#
```

To reconfigure the sequence of transform sets in a crypto map entry, delete the entry, specifying both the map name and sequence number; then recreate it. For example, the following commands reconfigure the crypto map entry named map2, sequence 3:

```
asa2(config)# no crypto map map2 3 set transform-set
asa2(config)# crypto map map2 3 set transform-set 192aes-sha 192aes-md5 128aes-sha
128aes-md5
asa2(config)#
```

Examples

The **crypto ipsec transform-set** (create or remove transform set) section shows ten transform set commands. The following example creates a crypto map entry named map2 consisting of the same ten transform sets:

```
hostname(config)# crypto map map2 10 set transform-set 3des-md5 3des-sha 56des-md5
56des-sha 128aes-md5 128aes-sha 192aes-md5 192aes-sha 256aes-md5 256aes-sha
hostname(config)#
```

The following example, entered in global configuration mode, shows the minimum required crypto map configuration when the ASA uses IKE to establish the security associations:

```
hostname(config)# crypto map map2 10 ipsec-isakmp
hostname(config)# crypto map map2 10 match address 101
hostname(config)# crypto map map2 set transform-set 3des-md5
hostname(config)# crypto map map2 set peer 10.0.0.1
hostname(config)#
```

Related Commands

Command	Description
clear configure crypto dynamic-map	Clears all dynamic crypto maps from the configuration.
clear configure crypto map	Clears all crypto maps from the configuration.
crypto dynamic-map set transform-set	Specifies the transform sets to use in a dynamic crypto map entry.
crypto ipsec transform-set	Configures a transform set.
show running-config crypto dynamic-map	Displays the dynamic crypto map configuration.
show running-config crypto map	Displays the crypto map configuration.

crypto map set ikev2 ipsec-proposal

To specify the IKEv2 proposal to use in a crypto map entry, use the **crypto map set ikev2 ipsec-proposal** command in global configuration mode. To remove the names of the proposals from a crypto map entry, use the **no** form of this command with the specified proposal name. To specify all or none of the proposal and remove the crypto map entry, use the **no** form of the command.

crypto map *map-name seq-num* **set ikev2 ipsec-proposal** *propsal-name1* [*… proposal-name11*]

no crypto map *map-name seq-num* **set ikev2 ipsec-proposal** *propsal-name1* [*… proposal-name11*]

no crypto map *map-name seq-num* **set ikev2 ipsec-proposal**

Syntax Description

map-name	Specifies the name of the crypto map set.
seq-num	Specifies the sequence number that corresponds to the crypto map entry.
propsal-name1 *proposal-name11*	Specifies one or more names of the IPsec proposals for IKEv2. Any proposal named in this command must be defined in the **crypto ipsec ikev2 ipsec-proposal** command. Each crypto map entry supports up to 11 proposals.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.4(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

For all crypto map entries, an IKEv1 transform set or an IKEv2 proposal is required.

The peer at the opposite end of the IPsec IKEv2 initiation uses the first matching proposal for the security association. If the local ASA initiates the negotiation, the order specified in the **crypto map** command determines the order in which theASA presents the contents of the proposals to the peer. If the peer initiates the negotiation, the local ASA uses the first proposal in the crypto map entry that matches the IPsec parameters sent by the peer.

If the peer at the opposite end of the IPsec initiation fails to match the values of the proposals, IPsec does not establish a security association. The initiator drops the traffic because there is no security association to protect it.

To change the list of proposals, create a new list and specify it to replace the old one.

If you use this command to modify a crypto map, the ASA modifies only the crypto map entry with the same sequence number you specify. For example, the ASA inserts the proposal named 56des-sha in the last position if you enter the following commands:

```
hostname(config)# crypto map map1 1 set ikev2 ipsec-proposal 128aes-md5 128aes-sha
192aes-md5
hostname(config)# crypto map map1 1 set ikev2 ipsec-proposal 56des-sha
hostname(config)#
```

The response to the following command shows the cumulative effect of the previous two commands:

```
hostname(config)# show running-config crypto map
crypto map map1 1 set ipsec-proposal 128aes-md5 128aes-sha 192aes-md5 56des-sha
hostname(config)#
```

To reconfigure the sequence of proposals in a crypto map entry, delete the entry, specifying both the map name and sequence number; then recreate it. For example, the following commands reconfigure the crypto map entry named *map2*, sequence 3:

```
asa2(config)# no crypto map map2 3 set ikev2 ipsec-proposal
asa2(config)# crypto map map2 3 set ikev2 ipsec-proposal 192aes-sha 192aes-md5 128aes-sha
128aes-md5
asa2(config)#
```

Examples

The following example creates a crypto map entry named map2, consisting of ten proposals.

```
hostname(config)# crypto map map2 10 set ikev2 ipsec-proposal 3des-md5 3des-sha 56des-md5
56des-sha 128aes-md5 128aes-sha 192aes-md5 192aes-sha 256aes-md5 256aes-sha
hostname(config)#
```

Related Commands

Command	Description
clear configure crypto dynamic-map	Clears all dynamic crypto maps from the configuration.
clear configure crypto map	Clears all crypto maps from the configuration.
crypto dynamic-map set transform-set	Specifies the transform sets to use in a dynamic crypto map entry.
crypto ipsec transform-set	Configures a transform set.
show running-config crypto dynamic-map	Displays the dynamic crypto map configuration.
show running-config crypto map	Displays the crypto map configuration.

crypto map set tfc-packets

To enable dummy Traffic Flow Confidentiality (TFC) packets on an IPsec SA, use the **crypto map set tfc-packets** command in global configuration mode. To disable TFC packets on an IPsec SA, use the **no** form of this command.

crypto map *name priority* **set tfc-packets** [**burst** *length* | *auto*] [**payload-size** *bytes* | *auto*] [**timeout** *second* | *auto*]

no crypto map *name priority* **set tfc-packets** [**burst** *length* | *auto*] [**payload-size** *bytes* | *auto*] [**timeout** *second* | *auto*]

Syntax Description

name	Specifies the name of the crypto map set.
priority	Specifies the priority that you assign to the crypto map entry.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

This command configures the existing DF policy (at an SA level) for the crypto map.

crypto map set trustpoint

To specify the trustpoint that identifies the certificate to send for authentication during Phase 1 negotiations for the crypto map entry, use the **crypto map set trustpoint** command in global configuration mode. To remove a trustpoint from a crypto map entry, use the **no** form of this command.

crypto map *map-name seq-num* **set trustpoint** *trustpoint-name* [**chain**]

no crypto map *map-name seq-num* **set trustpoint** *trustpoint-name* [**chain**]

Syntax Description

chain	(Optional) Sends a certificate chain. A CA certificate chain includes all CA certificates in a hierarchy of certificates from the root certificate to the identity certificate. The default value is disable (no chain).
map-name	Specifies the name of the crypto map set.
seq-num	Specifies the number that you assign to the crypto map entry.
trustpoint-name	Identifies the certificate to be sent during Phase 1 negotiations. The default is none.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

This crypto map command is valid only for initiating a connection. For information on the responder side, see the **tunnel-group** commands.

Examples

The following example, entered in global configuration mode, specifies a trustpoint named tpoint1 for crypto map mymap and includes the chain of certificates:

```
hostname(config)# crypto map mymap 10 set trustpoint tpoint1 chain
hostname(config)#
```

Related Commands

Command	Description
clear configure crypto map	Clears all configuration for all crypto maps.
show running-config crypto map	Displays the crypto map configuration.
tunnel-group	Configures tunnel groups.

crypto map set validate-icmp-errors

To specify whether or not to validate incoming ICMP error messages received through an IPsec tunnel that are destined for an interior host on the private network, use the **crypto map set validate-icmp-errors** command in global configuration mode. To remove a trustpoint from a crypto map entry, use the **no** form of this command.

crypto map *name priority* **set validate-icmp-errors**

no crypto map *name priority* **set validate-icmp-errors**

Syntax Description

name	Specifies the name of the crypto map set.
priority	Specifies the priority that you assign to the crypto map entry.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

This crypto map command is valid only for validating incoming ICMP error messages.

csc

To enable the ASA to send network traffic to the CSC SSM, use the **csc** command in class configuration mode. To remove the configuration, use the **no** form of this command.

csc {**fail-open** | **fail-close**}

no csc

Syntax Description

fail-close	Specifies that the adaptive ASA should block traffic if the CSC SSM fails. This applies to the traffic selected by the class map only. Other traffic not sent to the CSC SSM is not affected by a CSC SSM failure.
fail-open	Specifies that the adaptive ASA should allow traffic if the CSC SSM fails. This applies to the traffic selected by the class map only. Other traffic not sent to the CSC SSM is not affected by a CSC SSM failure.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

Class configuration mode is accessible from policy map configuration mode.

The **csc** command configures a security policy to send to the CSC SSM all traffic that is matched by the applicable class map. This occurs before the ASA allows the traffic to continue to its destination.

You can specify how the ASA treats matching traffic when the CSC SSM is not available to scan the traffic. The **fail-open** keyword specifies that the ASA permits the traffic to continue to its destination even though the CSC SSM is not available. The **fail-close** keyword specifies that the ASA never lets matching traffic continue to its destination when the CSC SSM is not available.

The CSC SSM can scan HTTP, SMTP, POP3, and FTP traffic. It supports these protocols only when the destination port of the packet requesting the connection is the well-known port for the protocol, that is, CSC SSM can scan only the following connections:

- FTP connections opened to TCP port 21
- HTTP connections opened to TCP port 80

- POP3 connections opened to TCP port 110
- SMTP connections opened to TCP port 25

If policies using the **csc** command select connections that misuse these ports for other protocols, the ASA passes the packets to the CSC SSM; however, the CSC SSM passes the packets without scanning them.

To maximize the efficiency of the CSC SSM, configure class maps used by policies implementing the **csc** command as follows:

- Select only the supported protocols that you that want the CSC SSM to scan. For example, if you do not want to scan HTTP traffic, be sure that service policies do not divert HTTP traffic to the CSC SSM.
- Select only those connections that risk trusted hosts protected by the ASA. These are connections from outside or untrusted networks to inside networks. We recommend scanning the following connections:
  - Outbound HTTP connections
  - FTP connections from clients inside the ASA to servers outside the ASA
  - POP3 connections from clients inside the ASA to servers outside the ASA
  - Incoming SMTP connections destined to inside mail servers

FTP Scanning

The CSC SSM supports scanning of FTP file transfers only if the primary channel for the FTP session uses the standard port, which is TCP port 21.

FTP inspection must be enabled for the FTP traffic that you want scanned by the CSC SSM. This is because FTP uses a dynamically assigned secondary channel for data transfer. The ASA determines the port assigned for the secondary channel and opens a pinhole to allow the data transfer to occur. If the CSC SSM is configured to scan FTP data, the ASA diverts the data traffic to the CSC SSM.

You can apply FTP inspection either globally or to the same interface that the **csc** command is applied to. By default, FTP inspection is enabled globally. If you have not changed the default inspection configuration, no further FTP inspection configuration is required to enable FTP scanning by the CSC SSM.

For more information about FTP inspection or the default inspection configuration, see the CLI configuration guide.

Examples

The ASA should be configured to divert traffic to CSC SSM requests from clients on the inside network for HTTP, FTP, and POP3 connections to the outside network and incoming SMTP connections from outside hosts to the mail server on the DMZ network. HTTP requests from the inside network to the web server on the DMZ network should not be scanned.

The following configuration creates two service policies. The first policy, csc_out_policy, is applied to the inside interface and uses the csc_out access list to ensure that all outbound requests for FTP and POP3 are scanned. The csc_out access list also ensures that HTTP connections from inside to networks on the outside interface are scanned, but the access list includes a deny ACE to exclude HTTP connections from inside to servers on the DMZ network.

The second policy, csc_in_policy, is applied to the outside interface and uses the csc_in access list to ensure that requests for SMTP and HTTP originating on the outside interface and destined for the DMZ network are scanned by the CSC SSM. Scanning HTTP requests protects the web server from HTTP file uploads.

```
hostname(config)# access-list csc_out permit tcp 192.168.10.0 255.255.255.0 any eq 21
```

```
hostname(config)# access-list csc_out deny tcp 192.168.10.0 255.255.255.0 192.168.20.0 255.255.255.0 eq 80
hostname(config)# access-list csc_out permit tcp 192.168.10.0 255.255.255.0 any eq 80
hostname(config)# access-list csc_out permit tcp 192.168.10.0 255.255.255.0 any eq 110

hostname(config)# class-map csc_outbound_class
hostname(config-cmap)# match access-list csc_out

hostname(config)# policy-map csc_out_policy
hostname(config-pmap)# class csc_outbound_class
hostname(config-pmap-c)# csc fail-close

hostname(config)# service-policy csc_out_policy interface inside

hostname(config)# access-list csc_in permit tcp any 192.168.20.0 255.255.255.0 eq 25
hostname(config)# access-list csc_in permit tcp any 192.168.20.0 255.255.255.0 eq 80

hostname(config)# class-map csc_inbound_class
hostname(config-cmap)# match access-list csc_in

hostname(config)# policy-map csc_in_policy
hostname(config-pmap)# class csc_inbound_class
hostname(config-pmap-c)# csc fail-close

hostname(config)# service-policy csc_in_policy interface outside
```

Note FTP inspection must be enabled for the CSC SSM to scan files transferred by FTP. FTP inspection is enabled by default.

Related Commands

Commands	Description
class (policy-map)	Specifies a class map for traffic classification.
class-map	Creates a traffic classification map, for use with a policy map.
match port	Matches traffic using a destination port.
policy-map	Creates a policy map by associating the traffic class with one or more actions.
service-policy	Creates a security policy by associating the policy map with one or more interfaces.

csd enable

To enable Cisco Secure Desktop (CSD) for clientless SSL VPN remote access or remote access using the AnyConnect client, use the **csd enable** command in webvpn configuration mode. To disable CSD, use the **no** form of this command.

csd enable

no csd enable

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration mode	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

CSD is enabled or disabled globally for all remote access connection attempts made to the ASA with one exception.

The **csd enable** command does the following:

1. Provides a validity check that supplements the check performed by the previous **csd image** *path* command.
2. Creates an sdesktop folder on disk0: if one is not already present.
3. Inserts a data.xml (Cisco Secure Desktop configuration) file in the sdesktop folder if one is not already present.
4. Loads the data.xml from the flash device to the running configuration.
5. Enables CSD.

Note

- You can enter the **show webvpn csd** command to determine whether or not Cisco Secure Desktop is enabled.
- The **csd image** *path* command must be in the running configuration before you enter the **csd enable** command.

- The **no csd enable** command disables CSD in the running configuration. If CSD is disabled, you cannot access CSD Manager and remote users cannot use CSD.
- If you transfer or replace the data.xml file, disable and then enable CSD to load the file into the running configuration.
- CSD is enabled or disabled globally for all remote access connection attempts made to the ASA. You cannot enable or disable CSD for an individual connection profile or group policy.

  Exception: Connection profiles for clientless SSL VPN connections can be configured so that CSD will not run on the client computer if the computer is attempting to connect to the ASA using a group URL and CSD is enabled globally. For example:

```
hostname(config)# tunnel-group group-name webvpn-attributes
hostname(config-tunnel-webvpn)# group-url https://www.url-string.com
hostname(config-tunnel-webvpn)# without-csd
```

Examples

The following commands shows how to view the status of the CSD image and enable it:

```
hostname(config-webvpn)# show webvpn csd
Secure Desktop is not enabled.
hostname(config-webvpn)# csd enable
hostname(config-webvpn)# show webvpn csd
Secure Desktop version 3.1.0.25 is currently installed and enabled.
hostname(config-webvpn)#
```

Related Commands

Command	Description
csd image	Copies the CSD image named in the command from the flash drive specified in the path to the running configuration.
show webvpn csd	Identifies the version of CSD if it is enabled. Otherwise, the CLI indicates "Secure Desktop is not enabled."
without-csd	Configures connection profiles for clientless SSL VPN sessions so that CSD will not run on the client computer if the computer is attempting to connect to the ASA using a group URL and CSD is enabled globally.

csd hostscan image

To install or upgrade the Cisco Host Scan distribution package and add it to the running configuration, use the **csd hostscan image** command in webvpn configuration mode. To remove the Host Scan distribution package from the running configuration, use the **no** form of this command:

csd hostscan image *path*

no csd hostscan image *path*

Syntax Description

path	Specifies the path and filename of the Cisco Host Scan package, up to 255 characters. The Host Scan package can be a standalone Host Scan package that has the file name convention, hostscan-*version*.pkg, or it can be the full AnyConnect Secure Mobility Client package that can be downloaded from Cisco.com and has the file name convention, anyconnect-win-*version*-k9.pkg. When customers specify the AnyConnect Secure Mobility Client, the ASA extracts the Host Scan package from the AnyConnect package and installs it. The Host Scan package contains the Host Scan software as well as the Host Scan library and support charts. This command cannot upload a CSD image. Use the **csd image** command for that operation.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
8.4(1)	This command was introduced.

Usage Guidelines

Enter the **show webvpn csd hostscan** command to determine the version of the Host Scan image that is currently installed and enabled.

After installing Host Scan with the **csd hostscan image** command, enable the image using the **csd enable** command.

Enter the **write memory** command to save the running configuration to ensure that the Host Scan image is available the next time that the ASA reboots.

Examples

The following commands show how to install a Cisco Host Scan package, enable it, view it, and save the configuration on the flash drive:

```
hostname> en
Password: ******
hostname# config t
hostname(config)# webvpn
hostname(config-webvpn)# show webvpn csd hostscan
Hostscan is not enabled.
hostname(config-webvpn)# csd hostscan image disk0:/hostscan_3.0.0333-k9.pkg
hostname(config-webvpn)# csd enable
hostname(config-webvpn)# show webvpn csd hostscan
Hostscan version 3.0.0333 is currently installed and enabled
hostname(config-webvpn)# write memory
Building configuration...
Cryptochecksum: 2e7126f7 71214c6b 6f3b28c5 72fa0a1e

22067 bytes copied in 3.460 secs (7355 bytes/sec)
[OK]
hostname(config-webvpn)#
```

Related Commands

Command	Description
show webvpn csd hostscan	Identifies the version of Cisco Host Scan if it is enabled. Otherwise, the CLI indicates “Secure Desktop is not enabled.”
csd enable	Enables CSD for management and remote user access.

csd image

To validate the Cisco Secure Desktop (CSD) distribution package and add it to the running configuration, effectively installing CSD, use the **csd image** command in webvpn configuration mode. To remove the CSD distribution package from the running configuration, use the **no** form of the command:

csd image *path*

no csd image *path*

Syntax Description

path	Specifies the path and filename of the CSD package, up to 255 characters.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

Enter the **show webvpn csd** command to determine whetheror not the CSD image is enabled before entering this command. The CLI indicates the version of the CSD image that is currently installed if it is enabled.

Use the **csd image** command to install a new Cisco Secure Desktop image, or upgrade an existing image, after you download it to your computer, and transfer it to the flash drive. When downloading it, be sure to get the correct file for the ASA; it is in the form securedesktop_asa_<n>_<n>*.pkg.

Entering the **no csd image** command removes both management access to CSD Manager and remote user access to CSD. The ASA does not make any changes to the CSD software and the CSD configuration on the flash drive when you enter this command.

Note Enter the **write memory** command to save the running configuration to ensure CSD is available the next time that the ASA reboots.

Examples

The following commands show how to view the current CSD distribution package, view the contents of the flash file system, and upgrade to a new version:

```
hostname# show webvpn csd
```

```
Secure Desktop version 3.1.0.24 is currently installed and enabled.
hostname# config t
hostname(config)# webvpn
hostname(config-webvpn)# show disk all
-#- --length-- -----date/time------ path
  6 8543616    Nov 02 2005 08:25:36 PDM
  9 6414336    Nov 02 2005 08:49:50 cdisk.bin
 10 4634       Sep 17 2004 15:32:48 first-backup
 11 4096       Sep 21 2004 10:55:02 fsck-2451
 12 4096       Sep 21 2004 10:55:02 fsck-2505
 13 21601      Nov 23 2004 15:51:46 shirley.cfg
 14 9367       Nov 01 2004 17:15:34 still.jpg
 15 6594064    Nov 04 2005 09:48:14 asdmfile.510106.rls
 16 21601      Dec 17 2004 14:20:40 tftp
 17 21601      Dec 17 2004 14:23:02 bingo.cfg
 18 9625       May 03 2005 11:06:14 wally.cfg
 19 16984      Oct 19 2005 03:48:46 tomm_backup.cfg
 20 319662     Jul 29 2005 09:51:28 sslclient-win-1.0.2.127.pkg
 21 0          Oct 07 2005 17:33:48 sdesktop
 22 5352       Oct 28 2005 15:09:20 sdesktop/data.xml
 23 369182     Oct 10 2005 05:27:58 sslclient-win-1.1.0.133.pkg
 24 1836210    Oct 12 2005 09:32:10 securedesktop_asa_3_1_0_24.pkg
 25 1836392    Oct 26 2005 09:15:26 securedesktop_asa_3_1_0_25.pkg

38600704 bytes available (24281088 bytes used)

******** Flash Card Geometry/Format Info ********

COMPACT FLASH CARD GEOMETRY
   Number of Heads:            4
   Number of Cylinders       978
   Sectors per Cylinder       32
   Sector Size               512
   Total Sectors          125184

COMPACT FLASH CARD FORMAT
   Number of FAT Sectors      61
   Sectors Per Cluster         8
   Number of Clusters      15352
   Number of Data Sectors 122976
   Base Root Sector          123
   Base FAT Sector             1
   Base Data Sector          155
hostname(config-webvpn)# csd image disk0:securedesktop_asa_3_1_0_25.pkg
hostname(config-webvpn)# show webvpn csd
Secure Desktop version 3.1.0.25 is currently installed and enabled.
hostname(config-webvpn)# write memory
Building configuration...
Cryptochecksum: 5e57cfa8 0e9ca4d5 764c3825 2fc4deb6

19566 bytes copied in 3.640 secs (6522 bytes/sec)
[OK]
hostname(config-webvpn)#
```

Related Commands

Command	Description
show webvpn csd	Identifies the version of CSD if it is enabled. Otherwise, the CLI indicates "Secure Desktop is not enabled."
csd enable	Enables CSD for management and remote user access.

ctl

To enable the Certificate Trust List (CTL) provider to parse the CTL file from the CTL client and install trustpoints, use the **ctl** command in ctl provider configuration mode. To remove the configuration, use the **no** form of this command.

ctl install

no ctl install

Syntax Description

This command has no arguments or keywords.

Defaults

This command is enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ctl provider configuration	•	•	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Use the **ctl** command in ctl provider configuration mode to enable the CTL provider to parse the CTL file from the CTL client and install trustpoints for entries from the CTL file. Ttrustpoints installed by this command have names prefixed with "_internal_CTL_<ctl_name>."

If this command is disabled, each CallManager server and CAPFs certificate must be manually imported and installed via the **crypto ca trustpoint** and **crypto ca certificate chain** commands.

Examples

The following example shows how to create a CTL provider instance:

```
hostname(config)# ctl-provider my_ctl
hostname(config-ctl-provider)# client interface inside 172.23.45.1
hostname(config-ctl-provider)# client username CCMAdministrator password XXXXXX encrypted
hostname(config-ctl-provider)# export certificate ccm_proxy
hostname(config-ctl-provider)# ctl install
```

Related Commands

Commands	Description
ctl-provider	Defines a CTL provider instance and enters provider configuration mode.
server trust-point	Specifies the proxy trustpoint certificate to be presented during the TLS handshake.
show tls-proxy	Shows the TLS proxies.
tls-proxy	Defines a TLS proxy instance and sets the maximum sessions.

ctl-file (global)

To specify the CTL instance to create for a phone proxy or to parse the CTL file stored in flash memory, use the **ctl-file** command in global configuration mode. To remove the CTL instance, use the **no** form of this command.

ctl-file *ctl_name* **noconfirm**

no ctl-file *ctl_name* **noconfirm**

Syntax Description

ctl_name	Specifies the name of the CTL instance.
noconfirm	(Optional) Used with the **no** command, stops warnings about deleting trustpoints when the CTL file is removed from being printed to the ASA console.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
8.0(4)	The command was introduced.

Usage Guidelines

If users have phones that require LSC provisioning, you must also import the CAPF certificate into the ASA from the CUMC when configuring the CTL file instance with the **ctl-file** command. For more information,see the CLI configuration guide.

Note To create the CTL file, use the **no shutdown** command in the ctl file configuration mode. To modify or add entries to a CTL file or to delete a CTL file, use the **shutdown** command.

Using the **no** form of the command removes the CTL file and all enrolled trustpoints internally created by a phone proxy. Additionally, removing the CTL file deletes all certificates received from the related certificate authority.

Examples

The following example shows how to configure the CTL file for the phone proxy feature:

```
hostname(config)# ctl-file myctl
```

Related Commands

Command	Description
ctl-file (phone-proxy)	Specifies the CTL file to use when configuring the phone proxy instance.
cluster-ctl-file	Parses the CTL file stored in flash memory to install the trustpoints from that file.
phone-proxy	Configures the phone proxy instance.
record-entry	Specifies the trustpoints to be used for the creation of the CTL file.
sast	Specifies the number of SAST certificates to create in the CTL record.

ctl-file (phone-proxy)

To specify the CTL instance to use when configuring the Phone Proxy, use the **ctl-file** command in phone-proxy configuration mode. To remove the CTL instance, use the **no** form of this command.

ctl-file *ctl_name*

no ctl-file *ctl_name*

Syntax Description

ctl_name	Specifies the name of the CTL instance.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Phone-proxy configuration	•	—	•	—	—

Command History

Release	Modification
8.0(4)	The command was introduced.

Examples

The following example shows the use of the **ctl-file** command to configure the CTL file for the Phone Proxy feature:

```
hostname(config-phone-proxy)# ctl-file myctl
```

Related Commands

Command	Description
ctl-file (global)	Specifies the CTL file to create for Phone Proxy configuration or the CTL file to parse from flash memory.
phone-proxy	Configures the Phone Proxy Instance.

ctl-provider

To configure a CTL provider instance in CTL provider mode, use the **ctl-provider** command in global configuration mode. To remove the configuration, use the **no** form of this command.

ctl-provider *ctl_name*

no ctl-provider *ctl_name*

Syntax Description

ctl_name	Specifies the name of the CTL provider instance.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Use the **ctl-provider** command to enter CTL provider configuration mode to create a CTL provider instance.

Examples

The following example shows how to create a CTL provider instance:

```
hostname(config)# ctl-provider my_ctl
hostname(config-ctl-provider)# client interface inside 172.23.45.1
hostname(config-ctl-provider)# client username CCMAdministrator password XXXXXX encrypted
hostname(config-ctl-provider)# export certificate ccm_proxy
hostname(config-ctl-provider)# ctl install
```

Related Commands

Commands	Description
client	Specifies clients allowed to connect to the CTL provider and the username and password for client authentication.
ctl	Parses the CTL file from the CTL client and install trustpoints.
export	Specifies the certificate to be exported to the client.

Commands	Description
service	Specify the port to which the CTL provider listens.
tls-proxy	Defines a TLS proxy instance and sets the maximum sessions.

cts import-pac

To import a Protected Access Credential (PAC) file from the Cisco ISE, use the **cts import-pac** command in global configuration mode:

cts import-pac *filepath* **password** *value*

Syntax Description

filepath	Specifies one of the following **exec** mode commands and options:. **Single Mode** • **disk0**: Path and filename on disk0 • **disk1**: Path and filename on disk1 • **flash**: Path and filename on flash • **ftp**: Path and filename on FTP • **http**: Path and filename on HTTP • **https**: Path and filename on HTTPS • **smb**: Path and filename on SMB • **tftp**: Path and filename on TFTP **Multi-mode** • **http**: Path and filename on HTTP • **https**: Path and filename on HTTPS • **smb**: Path and filename on SMB • **tftp**: Path and filename on TFTP
password *value*	Specifies the password used to encrypt the PAC file. The password is independent of the password that was configured on the ISE as part of the device credentials. The password must match the one provided when the PAC file was requested, and is necessary to decrypt the PAC data. This password is not related to the one that is configured on the ISE as part of the device credentials.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Importing the PAC file to the ASA establishes the connection with the ISE. After the channel is established, the ASA initiates a secure RADIUS transaction with the ISE and downloads Cisco TrustSec environment data; specifically, the ASA downloads the security group table. The security group table maps SGTs to security group names. Security group names are created on the ISE and provide user-friendly names for security groups. No channel is established prior to the RADIUS transaction. The ASA initiates a RADIUS transaction with the ISE using the PAC for authentication.

Tip The PAC file contains a shared key that allows the ASA and ISE to secure the RADIUS transactions that occur between them. Given the sensitive nature of this key, it must be stored securely on the ASA.

After successfully importing the file, the ASA download Cisco TrustSec environment data from the ISE without requiring the device password configured in the ISE.

The ASA stores the PAC file in an area of NVRAM that is not accessible through the user interface.

Prerequisites

- The ASA must be configured as a recognized Cisco TrustSec network device in the ISE before the ASA can generate a PAC file. The ASA can import any PAC file but it will only work on the ASA when the file was generated by a properly configured ISE.
- Obtain the password used to encrypt the PAC file when generating it on the ISE.

  The ASA requires this password to import and decrypt the PAC file.
- Access to the PAC file generated by the ISE. The ASA can import the PAC file from flash or from a remote server via TFTP, FTP, HTTP, HTTPS, or SMB. (The PAC file does not have to reside on the ASA flash before you can import it.)
- The server group has been configured for the ASA.

Restrictions

- When the ASA is part of an HA configuration, you must import the PAC file to the primary ASA device.
- When the ASA is part of a clustering configuration, you must import the PAC file to the master device.

Examples

The following example imports a PAC from the ISE:

```
hostname(config)# cts import pac disk0:/pac123.pac password hideme
PAC file successfully imported
```

Related Commands

Command	Description
cts refresh environment-data	Refreshes the Cisco TrustSec environment data from the ISE when the ASA is integrated with Cisco TrustSec
cts sxp enable	Enables the SXP protocol on the ASA.

cts refresh environment-data

To refresh the Cisco TrustSec environment data from the ISE and reset the reconcile timer to the configured default value, use the **cts refresh environment-data** command in global configuration mode:

cts refresh environment-data

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

When the ASA is integrated with Cisco TrustSec, the ASA downloads environment data from the ISE, which includes the Security Group Tag (SGT) name table. The ASA automatically refreshes its environment data obtained from the ISE when you complete the following tasks on the ASA:

- Configure a AAA server to communicate with the ISE.
- Import a PAC file from the ISE.
- Identify the AAA server group that the ASA will use for retrieval of Cisco TrustSec environment data.

Normally, you will not need to manually refresh the environment data from the ISE; however, security groups can change on the ISE. These changes are not reflected on the ASA until you refresh the data in the ASA security group table. Refresh the data on the ASA to make sure any security group made on the ISE are reflected on the ASA.

Tip We recommend that you schedule policy configuration changes on the ISE and the manual data refresh on the ASA during a maintenance window. Handling policy configuration changes in this way maximizes the chances of security group names getting resolved and security policies becoming active immediately on the ASA.

Prerequisites

The ASA must be configured as a recognized Cisco TrustSec network device in the ISE and the ASA must have successfully imported a PAC file, so that the changes made for Cisco TrustSec are applied to the ASA.

Restrictions

- When the ASA is part of an HA configuration, you must refresh the environment data on the primary ASA device.
- When the ASA is part of a clustering configuration, you must refresh the environment data on the master device.

Examples

The following example downloads the Cisco TrustSec environment data from the ISE:

```
hostname(config)# cts refresh environment-data
```

Related Commands

Command	Description
cts import-pac	Imports a Protected Access Credential (PAC) file from the Cisco ISE when the ASA is integrated with Cisco TrustSec.
cts sxp enable	Enables the SXP protocol on the ASA.

cts server-group

To identify the AAA server group that the ASA uses to integrate with Cisco TrustSec for environment data retrieval, use the **cts server-group** command in global configuration mode. To disable support for the command, use the **no** form of this command.

cts server-group *aaa-server-group-name*

no cts server-group [*aaa-server-group-name*]

Syntax Description

aaa-server-group-name	Specifies the name of an existing, locally configured AAA server group.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

As part of configuring the ASA to integrate with Cisco TrustSec, you must configure the ASA so that it can communicate with the ISE. Only one instance of the server group can be configured on the ASA for Cisco TrustSec.

Prerequisites

- The referenced server group must exist. If specify a undefined server group name in the *aaa-server-group-name* argument, the ASA will display an error message.
- The referenced server group must be configured to use the RADIUS protocol. If you add a non-RADIUS server group to the ASA, the feature configuration will fail.
- If the ISE is also used for user authentication, obtain the shared secret that was entered on the ISE when you registered the ASA with the ISE. Contact your ISE administrator if you do not have this information.

Examples

The following example locally configures on the ASA the AAA server group for the ISE and configures the ASA to use that AAA server group for the ASA integration with Cisco TrustSec:

```
hostname(config)# aaa-server ISEserver protocol radius
```

```
hostname(config-aaa-server-group)# exit
hostname(config)# aaa-server ISEserver (inside) host 192.0.2.1
hostname(config-aaa-server-host)# key myexclusivemumblekey
hostname(config-aaa-server-host)# exit
hostname(config)# cts server-group ISEserver
```

Related Commands

Command	Description
aaa-server *server-tag* **protocol radius**	Creates the AAA server group and configures the AAA server parameters for the ASA to communicate with the ISE server; where *server-tag* specifies the server group name.
aaa-server *server-tag* (*interface-name*) **host** *server-ip*	Configures a AAA server as part of a AAA server group and sets host-specific connection data; where (*interface-name*) specifies the network interface where the ISE server resides, and *server-tag* is the name of the AAA server group for the Cisco TrustSec integration, and e *server-ip* specifies the IP address of the ISE server.
cts sxp enable	Enables the SXP protocol on the ASA.

cts sxp connection peer

To set up an SXP connection to an SXP peer, use the **cts sxp connection peer** command in global configuration mode. To disable support for the command, use the **no** form of this command.

cts sxp connection peer *peer_ip_address* [**source** *source_ip_address*] **password** {**default** | **mode**} [**mode** {**local** | **peer**}] {**speaker** | **listener**}

no cts sxp connection peer *peer_ip_address* [**source** *source_ip_address*] [**password** {**default** | **none**}] [**mode** {**local** | **peer**}] [**speaker** | **listener**]

Syntax Description

default	Used with the **password** keyword. Specifies to use the default password configured for SXP connections.
listener	Specifies that the ASA functions as a listener for the SXP connection; meaning that the ASA can receive IP-SGT mappings from downstream devices. Specifying a speaker or listener role for the ASA for the SPX connection is required.
local	Used with the **mode** keyword. Species to use the local SXP device.
mode	(Optional) Specifies the mode of the SXP connection.
none	Used with the **password** keyword. Specifies not to use a password for the SXP connection.
password	(Optional) Specifies whether to use the authentication key for the SXP connection.
peer	Used with the **mode** keyword. Species to use the peer SXP device.
peer_ip_address	Specifies the IPv4 or IPv6 address of the SXP peer. The peer IP address must be reachable from the ASA outgoing interface.
source *source_ip_address*	(Optional) Specifies the local IPv4 or IPv6 address of the SXP connection.
speaker	Specifies that the ASA functions as a speaker for the SXP connection; meaning that the ASA can forward IP-SGT mappings to upstream devices. Specifying a speaker or listener role for the ASA for the SPX connection is required.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

SXP connections between peers are point-to-point and use TCP as the underlying transport protocol. SXP connections are set per IP address; a single device pair can service multiple SXP connections.

Restrictions

- The ASA does not support per-connection passwords for SXP connection.
- When you use the **cts sxp default password** to configure a default SXP password, you should configure the SXP connection to use the default password; conversely, when you do not configure a default password, you should not configure a default password for the SXP connection. If you do not follow these two guidelines, SXP connections can fail.
- When you configure an SXP connection with a default password, but the ASA does not have default password configured, the SXP connection will fail.
- When you configure a source IP address for an SXP connection, you must specify the same address as the ASA outbound interface. If the source IP address does not match the address of the outbound interface, the SXP connection will fail.

  When the source IP address for an SXP connection is not configured, the ASA performs a route/ARP lookup to determine the outbound interface for the SXP connection. We recommend that you do not configure a source IP address for SXP connection and allow the ASA to perform a route/ARP lookup to determine the source IP address for the SXP connection.
- Configuring an IPv6 local link address for an SXP peer or source is not supported.
- Configuring multiple IPv6 addresses on the same interface for SXP connections is not supported.

Examples

The following example creates an SXP connection on the ASA:

```
hostname(config)# cts sxp connection peer 192.168.1.100 source 192.168.1.1 password default mode peer speaker
```

Related Commands

Command	Description
cts sxp default password	Specifies the default password for SXP connectios.
cts sxp enable	Enables the SXP protocol on the ASA.

cts sxp default password

To configure a default password for TCP MD5 authentication with SXP peers, use the **cts sxp default password** command in global configuration mode. To disable support for the command, use the **no** form of this command.

cts sxp default password [**0** | **8**] *password*

no cts sxp default password [**0** | **8**] [*password*]

Syntax Description

0	(Optional) Specifies that the default password use unencrypted cleartext for the encryption level. You can only set one encryption level for the default password.
8	(Optional) Specifies that the default password use encrypted text for the encryption level.
password	Specifies an encrypted string up to 162 characters or an ASCII key string up to 80 characters.

Defaults

By default, SXP connections do not have a password set.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

When you configure an SXP connection with a default password, but the ASA does not have default password configured, the SXP connection will fail.

Restrictions

- The ASA does not support per-connection passwords for SXP connection.
- When you use the **cts sxp default password** to configure a default SXP password, you should configure the SXP connection to use the default password; conversely, when you do not configure a default password, you should not configure a default password for the SXP connection. If you do not follow these two guidelines, SXP connections can fail.

Examples

The following example shows how to set default values for all SXP connections, including a default password for SXP connections:

```
hostname(config)# cts sxp enable
hostname(config)# cts sxp default source-ip 192.168.1.100
hostname(config)# cts sxp default password 8 ********
hostname(config)# cts sxp retry period 60
hostname(config)# cts sxp reconcile period 60
```

Related Commands

Command	Description
cts sxp connection peer	Configures an SXP connection for the ASA to an SXP peer. Specifying the **password default** keywords with this command, enables the use of the default password for that SXP connection.
cts sxp enable	Enables the SXP protocol on the ASA.

cts sxp default source-ip

To configure a default local IP address for SXP connections, use the **cts sxp default source-ip** command in global configuration mode. To disable support for the command, use the **no** form of this command.

cts sxp default source-ip *ipaddress*

no cts sxp default source-ip [*ipaddress*]

Syntax Description

ipaddress	Specifies an IPv4 or IPv6 address for the source IP address.

Defaults

By default, SXP connections do not have a default source IP address set.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

When you configure a default source IP address for SXP connections, you must specify the same address as the ASA outbound interface. If the source IP address does not match the address of the outbound interface, SXP connections will fail.

When a source IP address for an SXP connection is not configured, the ASA performs a route/ARP lookup to determine the outbound interface for the SXP connection. We recommend that you do not configure a default source IP address for SXP connections and allow the ASA to perform a route/ARP lookup to determine the source IP address for an SXP connection.

Examples

The following example shows how to set default values for all SXP connections, including a default source IP address for SXP connections:

```
hostname(config)# cts sxp enable
hostname(config)# cts sxp default source-ip 192.168.1.100
hostname(config)# cts sxp default password 8 ********
hostname(config)# cts sxp retry period 60
hostname(config)# cts sxp reconcile period 60
```

Related Commands

Command	Description
cts sxp connection peer	Configures an SXP connection for the ASA. Specifying the **source** *source_ip_address* keyword and argument with this command, enables the use of the default source IP address for that SXP connection.
cts sxp enable	Enables the SXP protocol on the ASA.

cts sxp enable

To enable the SXP protocol on the ASA, use the **cts sxp enable** command in global configuration mode. To disable support for the command, use the **no** form of this command.

cts sxp enable

no cts sxp enable

Syntax Description

This command has no arguments or keywords.

Defaults

By default, the SXP protocol is disabled on the ASA.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Examples

The following example enables the SXP protocol on the ASA:

```
hostname(config)# cts sxp enable
```

Related Commands

Command	Description
clear cts	Clears data used by the ASA when integrated with Cisco TrustSec.
cts sxp connection peer	Configures an SXP connection for the ASA to an SXP peer.

cts sxp reconciliation period

To ..., use the **cts sxp reconciliation period** command in global configuration mode. To disable support for the command, use the **no** form of this command.

cts sxp reconciliation period *timervalue*

no cts sxp reconciliation period [*timervalue*]

Syntax Description

timervalue	Specifies the default value for the reconciliation timer. Enter the number of seconds in the range of 1 to 64000 seconds.

Defaults

By default, the *timervalue* is 120 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

After an SXP peer terminates its SXP connection, the ASAstarts a hold down timer. If an SXP peer connects while the hold down timer is running, the ASA starts the reconciliation timer; then, the ASA updates the SXP mapping database to learn the latest mappings.

When the reconciliation timer expires, the ASA scans the SXP mapping database to identify stale mapping entries (entries that were learned in a previous connection session). The ASA marks these connections as obsolete. When the reconciliation timer expires, the ASA removes the obsolete entries from the SXP mapping database.

You cannot specify 0 for the timer because specifying 0 would prevent the reconciliation timer from starting. Not allowing the reconciliation timer to run would keep stale entries for an undefined time and cause unexpected results from the policy enforcement.

Examples

The following example shows how to set default values for all SXP connections, including a default reconciliation timer:

```
hostname(config)# cts sxp enable
hostname(config)# cts sxp default source-ip 192.168.1.100
hostname(config)# cts sxp default password 8 ********
hostname(config)# cts sxp retry period 60
```

```
hostname(config)# cts sxp reconcile period 60
```

Related Commands

Command	Description
cts sxp connection peer	Configures an SXP connection for the ASA to an SXP peer.
cts sxp enable	Enables the SXP protocol on the ASA.

cts sxp retry period

To specify the default time interval between ASA attempts to set up new SXP connections between SXP peers., use the **cts sxp retry period** command in global configuration mode. To disable support for the command, use the **no** form of this command.

cts sxp retry period *timervalue*

no cts sxp retry period [*timervalue*]

Syntax Description

timervalue	Specifies the default value for the retry timer. Enter the number of seconds in the range of 0 to 64000 seconds.

Defaults

By default, the *timervalue* is 120 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Specifies the default time interval between ASA attempts to set up new SXP connections between SXP peers. The ASA continues to make connection attempts until a successful connection is made.

The retry timer is triggered as long as there is one SXP connection on the ASA that is not up.

If you specify 0 seconds, the timer never expires and the ASA will not attempt to connect to SXP peers.

When the retry timer expires, the ASA goes through the connection database and if the database contains any connections that are off or in a “pending on” state, the ASA restarts the retry timer.

We recommend you configure the retry timer to a different value from its SXP peer devices.

Examples

The following example shows how to set default values for all SXP connections, including a default retry period:

```
hostname(config)# cts sxp enable
hostname(config)# cts sxp default source-ip 192.168.1.100
hostname(config)# cts sxp default password 8 ********
hostname(config)# cts sxp retry period 60
hostname(config)# cts sxp reconcile period 60
```

Related Commands

Command	Description
cts sxp connection peer	Configures an SXP connection for the ASA to an SXP peer.
cts sxp enable	Enables the SXP protocol on the ASA.

customization

To specify the customization to use for a tunnel group, group, or user, use the **customization** command in tunnel-group webvpn-attributes configuration mode or webvpn configuration mode. To not specify a customization, use the **no** form of this command.

customization ***name***

no customization *name*

customization {**none** | **value** *name*}

no customization {**none** | **value** *name*}

Syntax Description

name	Specifies the name of the WebVPN customization to apply to a group or user.
none	Disables customization for the group or user, and prevents the customization from being inherited.
value *name*	Specifies the name of a customization to apply to the group policy or user.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tunnel-group webvpn-attributes configuration	•	—	•	—	—
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

Before entering the **customization** command in tunnel-group webvpn-attributes configuration mode, you must name and configure the customization using the **customization** command in webvpn configuration mode.

Mode-Dependent Command Options

The keywords available with the **customization** command differ depending on the mode you are in. In group-policy attributes configuration mode and username attributes configuration mode, the additional keywords **none** and **value** appear.

For example, if you enter the **customization none** command from username attributes configuration mode, the ASA will not look for the value in the group policy or tunnel group.

Examples

The following example shows a command sequence that first establishes a WebVPN customization named "123" that defines a password prompt. The example then defines a WebVPN tunnel group named "test" and uses the **customization** command to specifies the use of the WebVPN customization named "123":

```
hostname(config)# webvpn
hostname(config-webvpn)# customization 123
hostname(config-webvpn-custom)# password-prompt Enter password
hostname(config-webvpn)# exit
hostname(config)# tunnel-group test type webvpn
hostname(config)# tunnel-group test webvpn-attributes
hostname(config-tunnel-webvpn)# customization 123
hostname(config-tunnel-webvpn)#
```

The folowing example shows the customization named "cisco" applied to the group policy named "cisco_sales." Note that the additional command option **value** is required with the **customization** command entered in group-policy attributes configuration mode via webvpn configuration mode:

```
hostname(config)# group-policy cisco_sales attributes
hostname(config-group-policy)#  webvpn
hostname(config-group-webvpn)# customization value cisco
```

Related Commands

Command	Description
clear configure tunnel-group	Removes all tunnel group configuration.
show running-config tunnel-group	Displays the current tunnel group configuration.
tunnel-group webvpn-attributes	Enters the webvpn configuration mode for configuring WebVPN tunnel group attributes.

cxsc

To redirect traffic to the ASA CX module, use the **cxsc** command in class configuration mode. To remove the ASA CX action, use the **no** form of this command.

cxsc {**fail-close** | **fail-open**} [**auth-proxy** | **monitor-only**]

no cxsc {**fail-close** | **fail-open**} [**auth-proxy** | **monitor-only**]

Syntax Description

auth-proxy	(Optional) Enables the authentication proxy, which is required for active authentication.
fail-close	Sets the ASA to block all traffic if the ASA CX module is unavailable.
fail-open	Sets the ASA to allow all traffic through, uninspected, if the ASA CX module is unavailable.
monitor-only	For demonstration purposes only, specify **monitor-only** to send a read-only copy of traffic to the ASA CX module. When you configure this option, you see a warning message similar to the following: `WARNING: Monitor-only mode should be used for demonstrations and evaluations only. This mode prevents CXSC from denying or altering traffic.`

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
8.4(4.1)	We introduced this command.
9.1(2)	We added the **monitor-only** keyword to support demonstration functionality.
9.1(3)	You can now configure ASA CX policies per context.

Usage Guidelines

You can access the class configuration mode by first entering the policy-map command.

Before or after you configure the **cxsc** command on the ASA, configure the security policy on the ASA CX module using Cisco Prime Security Manager (PRSM).

To configure the **cxsc** command, you must first configure the **class-map** command, **policy-map** command, and the **class** command.

Traffic Flow

The ASA CX module runs a separate application from the ASA. It is, however, integrated into the ASA traffic flow. When you apply the **cxsc** command for a class of traffic on the ASA, traffic flows through the ASA and the ASA CX module in the following way:

1. Traffic enters the ASA.
2. Incoming VPN traffic is decrypted.
3. Firewall policies are applied.
4. Traffic is sent to the ASA CX module over the backplane.
5. The ASA CX module applies its security policy to the traffic and takes appropriate actions.
6. Valid traffic is sent back to the ASA over the backplane; the ASA CX module might block some traffic according to its security policy, and that traffic is not passed on.
7. Outgoing VPN traffic is encrypted.
8. Traffic exits the ASA.

Information About Authentication Proxy

When the ASA CX needs to authenticate an HTTP user (to take advantage of identity policies), you must configure the ASA to act as an authentication proxy: the ASA CX module redirects authentication requests to the ASA interface IP address/proxy port. By default, the port is 885 (user configurable with the **cxsc auth-proxy port** command). Configure this feature as part of the service policy to divert traffic from the ASA to the ASA CX module. If you do not enable the authentication proxy, only passive authentication is available.

Compatibility with ASA Features

The ASA includes many advanced application inspection features, including HTTP inspection. However, the ASA CX module provides more advanced HTTP inspection than the ASA provides, as well as additional features for other applications, including monitoring and controlling application usage.

To take full advantage of the ASA CX module features, see the following guidelines for traffic that you send to the ASA CX module:

- Do not configure ASA inspection on HTTP traffic.
- Do not configure Cloud Web Security (ScanSafe) inspection. If you configure both the ASA CX action and Cloud Web Security inspection for the same traffic, the ASA only performs the ASA CX action.
- Other application inspections on the ASA are compatible with the ASA CX module, including the default inspections.
- Do not enable the Mobile User Security (MUS) server; it is not compatible with the ASA CX module.
- Do not enable ASA clustering; it is not compatible with the ASA CX module.
- If you enable failover, when the ASA fails over, any existing ASA CX flows are transferred to the new ASA, but the traffic is allowed through the ASA without being acted upon by the ASA CX module. Only new flows recieved by the new ASA are acted upon by the ASA CX module.

Monitor-Only Mode

For testing and demonstration purposes, you can configure the ASA to send a duplicate stream of read-only traffic to the ASA CX module using the **monitor-only** keyword, so you can see how the module inspects the traffic without affecting the ASA traffic flow. In this mode, the ASA CX module

inspects the traffic as usual, makes policy decisions, and generates events. However, because the packets are read-only copies, the module actions do not affect the actual traffic. Instead, the module drops the copies after inspection.

See the following guidelines:

- You cannot configure both monitor-only mode and normal inline mode at the same time on the ASA. Only one type of security policy is allowed.
- The following features are not supported in monitor-only mode:
  - Deny policies
  - Active authentication
  - Decryption policies
- The ASA CX does not perform packet buffering in monitor-only mode, and events will be generated on a best effort basis. For example, some events, such as ones with long URLs spanning packet boundaries, may be impacted by the lack of buffering.
- Be sure to configure both the ASA policy and the ASA CX to have matching modes: both in monitor-only, or both in normal inline mode.

Examples

The following example diverts all HTTP traffic to the ASA CX module and blocks all HTTP traffic if the ASA CX module card fails for any reason:

```
hostname(config)# access-list ASACX permit tcp any any eq port 80
hostname(config)# class-map my-cx-class
hostname(config-cmap)# match access-list ASACX
hostname(config-cmap)# policy-map my-cx-policy
hostname(config-pmap)# class my-cx-class
hostname(config-pmap-c)# cxsc fail-close auth-proxy
hostname(config-pmap-c)# service-policy my-cx-policy global
```

The following example diverts all IP traffic destined for the 10.1.1.0 network and the 10.2.1.0 network to the ASA CX module and allows all traffic through if the ASA CX module fails for any reason:

```
hostname(config)# access-list my-cx-acl permit ip any 10.1.1.0 255.255.255.0
hostname(config)# access-list my-cx-acl2 permit ip any 10.2.1.0 255.255.255.0
hostname(config)# class-map my-cx-class
hostname(config-cmap)# match access-list my-cx-acl
hostname(config)# class-map my-cx-class2
hostname(config-cmap)# match access-list my-cx-acl2
hostname(config-cmap)# policy-map my-cx-policy
hostname(config-pmap)# class my-cx-class
hostname(config-pmap-c)# cxsc fail-open auth-proxy
hostname(config-pmap)# class my-cx-class2
hostname(config-pmap-c)# cxsc fail-open auth-proxy
hostname(config-pmap-c)# service-policy my-cx-policy interface outside
```

Related Commands

Command	Description
class	Specifies a class map to use for traffic classification.
class-map	Identifies traffic for use in a policy map.
cxsc auth-proxy port	Sets the authentication proxy port.
debug cxsc	Enables ASA CX debugging messages.
hw-module module password-reset	Resets the module password to the default.

Command	Description
hw-module module reload	Reloads the module.
hw-module module reset	Performs a reset and then reloads the module.
hw-module module shutdown	Shuts down the module.
policy-map	Configures a policy; that is, an association of a traffic class and one or more actions.
session do get-config	Gets the module configuration.
session do password-reset	Resets the module password to the default.
session do setup host ip	Configures the module management address.
show asp table classify domain cxsc	Shows the NP rules created to send traffic to the ASA CX module.
show asp table classify domain cxsc-auth-proxy	Shows the NP rules created for the authentication proxy for the ASA CX module.
show module	Shows the module status.
show running-config policy-map	Displays all current policy map configurations.
show service-policy	Shows service policy statistics.

cxsc auth-proxy port

To set the authentication proxy port for ASA CX module traffic, use the **cxsc auth-proxy port** command in global configuration mode. To set the port to the default, use the **no** form of this command.

cxsc auth-proxy port *port*

no cxsc auth-proxy port [*port*]

Syntax Description

port *port*	Sets the authentication proxy port to a value higher than 1024. The default is 885.

Command Default

The default port is 885.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.4(4.1)	We introduced this command.
9.1(3)	You can now configure ASA CX policies per context.

Usage Guidelines

If you enable the authentication proxy when you configure the **cxsc** command, you can change the port using this command.

When the ASA CX needs to authenticate an HTTP user (to take advantage of identity policies), you must configure the ASA to act as an authentication proxy: the ASA CX module redirects authentication requests to the ASA interface IP address/proxy port. By default, the port is 885. Configure this feature as part of the service policy to divert traffic from the ASA to the ASA CX module. If you do not enable the authentication proxy, only passive authentication is available.

Examples

The following example enables the authentication proxy for ASA CX traffic, then changes the port to 5000:

```
hostname(config)# access-list ASACX permit tcp any any eq port 80
hostname(config)# class-map my-cx-class
hostname(config-cmap)# match access-list ASACX
hostname(config-cmap)# policy-map my-cx-policy
hostname(config-pmap)# class my-cx-class
hostname(config-pmap-c)# cxsc fail-close auth-proxy
hostname(config-pmap-c)# service-policy my-cx-policy global
```

```
hostname(config)# cxsc auth-port 5000
```

Related Commands

Command	Description
class	Specifies a class map to use for traffic classification.
class-map	Identifies traffic for use in a policy map.
cxsc	Redirects traffic to the ASA CX module.
debug cxsc	Enables ASA CX debug messages.
hw-module module password-reset	Resets the module password to the default.
hw-module module reload	Reloads the module.
hw-module module reset	Performs a reset, and then reloads the module.
hw-module module shutdown	Shuts down the module.
policy-map	Configures a policy; that is, an association of a traffic class and one or more actions.
session do get-config	Gets the module configuration.
session do password-reset	Resets the module password to the default.
session do setup host ip	Configures the module management address.
show asp table classify domain cxsc	Shows the NP rules created to send traffic to the ASA CX module.
show asp table classify domain cxsc-auth-proxy	Shows the NP rules created for the authentication proxy for the ASA CX module.
show module	Shows the module status.
show running-config policy-map	Displays all current policy map configurations.
show service-policy	Shows service policy statistics.

CHAPTER 13

database path through debug cxsc Commands

database path

To specify a path or location for the local CA server database, use the **database** command in ca server configuration mode. To reset the path to flash memory, the default setting, use the **no** form of this command.

[**no**] **database path** *mount-name directory-path*

Syntax Description

directory-path	Specifies the path to a directory on the mount point where the CA files are stored.
mount-name	Specifies the mount name.

Defaults

By default, the CA server database is stored in flash memory.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Ca server configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

The local CA files stored in the database include the certificate database, user database files, temporary PKCS12 files, and the current CRL file. The *mount-name* argument is the same as the *name* argument for the **mount** command that is used to specify a file system for the ASA.

Note These CA files are internal, stored files and should not be modified.

Examples

The following example defines the mount point for the CA database as cifs_share and the database files directory on the mount point as ca_dir/files_dir:

```
hostname(config)# crypto ca server
hostname(config-ca-server)# database path cifs_share ca_dir/files_dir/
hostname(config-ca-server)#
```

Related Commands

Command	Description
crypto ca server	Provides access to the ca server configuration mode CLI command set, which allows the user to configure and manage a local CA.
crypto ca server user-db write	Writes the user information configured in the local CA database to disk.
debug crypto ca server	Shows debugging messages when the user configures the local CA server.
mount	Makes the Common Internet File System (CIFS) and/or File Transfer Protocol file systems (FTPFS) accessible to the ASA.
show crypto ca server	Displays the characteristics of the CA configuration on the ASA.
show crypto ca server cert-db	Displays the certificates issued by the CA server.

ddns

To specify a Dynamic DNS (DDNS) update method type, use the **ddns** command in ddns-update-method mode. To remove an update method type from the running configuration, use the **no** form of this command.

ddns [**both**]

no ddns [**both**]

Syntax Description

both	(Optional) Specifies updates to both the DNS A and PTR resource records (RRs).

Defaults

Update only the DNS A RRs.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ddns-update-method	•	—	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

DDNS updates the name-to-address and address-to-name mapping maintained by DNS. Of the two methods for performing DDNS updates—the IETF standard defined by RFC 2136 and a generic HTTP method—the ASA supports the IETF method in this release.

Name and address mappings are contained in two types of RRs:

- The A resource record contains domain name-to-IP address mapping.
- The PTR resource record contains IP address-to-domain name mapping.

DDNS updates can be used to maintain consistent information between the DNS A and PTR RR types.

When issued in ddns-update-method configuration mode, the **ddns** command defines whether the update is just to a DNS A RR, or to both DNS A and PTR RR types.

Examples

The following example configures updates to both the DNS A and PTR RRs for the DDNS update method named ddns-2:

```
hostname(config)# ddns update method ddns-2
hostname(DDNS-update-method)# ddns both
```

Related Commands

Command	Description
ddns update	Associates a DDNS update method with an ASA interface or a DDNS update hostname.
ddns update method	Creates a method for dynamically updating DNS resource records.
dhcp-client update dns	Configures the update parameters that the DHCP client passes to the DHCP server.
dhcpd update dns	Enables a DHCP server to perform DDNS updates.
interval maximum	Configures the maximum interval between update attempts by a DDNS update method.

ddns update

To associate a dynamic DNS (DDNS) update method with an ASA interface or an update hostname, use the **ddns update** command in interface configuration mode. To remove the association between the DDNS update method and the interface or the hostname from the running configuration, use the **no** form of this command.

ddns update [*method-name* | **hostname** *hostname*]

no ddns update [*method-name* | **hostname** *hostname*]

Syntax Description

hostname	Specifies that the next term in the command string is a hostname.
hostname	Specifies a hostname to be used for updates.
method-name	Specifies a method name for association with the interface being configured.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Interface configuration	•	—	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

After defining a DDNS update method, you must associate it with an ASA interface to trigger DDNS updates.

A hostname could be a Fully Qualified Domain Name (FQDN) or just a hostname. If just a hostname, the ASA appends a domain name to the hostname to create a FQDN.

Examples

The following example associates the interface GigabitEthernet0/2 with the DDNS update method named ddns-2 and the hostname hostname1.example.com:

```
hostname(config)# interface GigabitEthernet0/2
hostname(config-if)# ddns update ddns-2
hostname(config-if)# ddns update hostname hostname1.example.com
```

Related Commands

Command	Description
ddns	Specifies a DDNS update method type for a created DDNS method.
ddns update method	Creates a method for dynamically updating DNS resource records.
dhcp-client update dns	Configures the update parameters that the DHCP client passes to the DHCP server.
dhcpd update dns	Enables a DHCP server to perform DDNS updates.
interval maximum	Configures the maximum interval between update attempts by a DDNS update method.

ddns update method

To create a method for dynamically updating DNS resource records (RRs), use the **ddns update method** command in global configuration mode. To remove a dynamic DNS (DDNS) update method from the running configuration, use the **no** form of this command.

ddns update method *name*

no ddns update method *name*

Syntax Description

name	Specifies the name of a method for dynamically updating DNS records.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

DDNS updates the name-to-address and address-to-name mapping maintained by DNS. The update method configured by the **ddns update method** command determines what and how often DDNS updates are performed. Of the two methods for performing DDNS updates—the IETF standard defined by RFC 2136 and a generic HTTP method—the ASA supports the IETF method in this release.

Name and address mapping is contained in two types of resource records (RRs):

- The A resource record contains domain name-to IP-address mapping.
- The PTR resource record contains IP address-to-domain name mapping.

DDNS updates can be used to maintain consistent information between the DNS A and PTR RR types.

Note Before the **ddns update method** command will work, you must configure a reachable default DNS server using the **dns** command with domain lookup enabled on the interface.

Examples

The following example configures the DDNS update method named ddns-2:

```
hostname(config)# ddns update method ddns-2
```

Related Commands

Command	Description
ddns	Specifies a DDNS update method type for a created DDNS method.
ddns update	Associates a DDNS update method with an ASA interface or a DDNS update hostname.
dhcp-client update dns	Configures the update parameters that the DHCP client passes to the DHCP server.
dhcpd update dns	Enables a DHCP server to perform dynamic DNS updates.
interval maximum	Configures the maximum interval between update attempts by a DDNS update method.

debug aaa

To show debugging messages for AAA, use the **debug aaa** command in privileged EXEC mode. To disable the display of AAA messages, use the **no** form of this command.

debug aaa [**accounting | authentication | authorization | common | internal | vpn** [*level*]]

no debug aaa

Syntax Description

accounting	(Optional) Show debugging messages for accounting only.
authentication	(Optional) Show debugging messages for authentication only.
authorization	(Optional) Show debugging messages for authorization only.
common	(Optional) Show debugging messages for different states within the AAA feature.
internal	(Optional) Show debugging messages for AAA functions supported by the local database only.
level	(Optional) Specifies the debugging level. Valid with the **vpn** keyword only.
vpn	(Optional) Show debugging messages for VPN-related AAA functions only.

Defaults

The default debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was modified to include new keywords.

Usage Guidelines

The **debug aaa** command displays detailed information about AAA activity. The **no debug all** and **undebug all** commands turn off all enabled debugging commands.

Examples

The following is sample output from the **debug aaa internal** command:

```
hostname(config)# debug aaa internal
debug aaa internal enabled at level 1
hostname(config)# uap allocated. remote address: 10.42.15.172, Session_id: 2147483841
uap freed for user . remote address: 10.42.15.172, session id: 2147483841
```

Related Commands

Command	Description
show running-config aaa	Displays the running configuration related to AAA.

debug acl filter

To enable VPN filter debugging, use the **debug acl filter** command in privileged EXEC mode. To disable VPN filter debugging, use the **no** form of this command.

debug acl filter

no debug acl filter

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
8.2(2)	This command was introduced.

Usage Guidelines

Use the **debug acl filter** command to help troubleshoot installation of the VPN filters into the ASP Filter table and removal of the VPN filters from the ASP Filter table.

Examples

The following is sample output from the **debug acl filter** command when a user 1 connects:

```
hostname(config)# debug acl filter
ACL FILTER INFO: first reference to inbound filter vpnfilter(2): Installing rule into NP.
 ACL FILTER INFO: first reference to outbound filter vpnfilter(2): Installing rule into
NP.
```

The following is sample output from the **debug acl filter** command when a user 1 disconnects:

```
hostname(config)# debug acl filter

ACL FILTER INFO: releasing last reference from inbound filter vpnfilter(2): Removing rule
into NP.
 ACL FILTER INFO: releasing last reference from outbound filter vpnfilter(2): Removing
rule into NP.
```

Related Commands

Command	Description
show asp table filter	Debugs the accelerated security path filter tables.
clear asp table filter	Clears the hit counters for the ASP filter table entries.

debug appfw

To display detailed information about application inspection, use the **debug appfw** command in privileged EXEC mode. To disable debugging, use the **no** form of this command.

debug appfw [**chunk** | **event** | **eventverb** | **regex**]

no debug appfw [**chunk** | **event** | **eventverb** | **regex**]

Syntax Description

chunk	(Optional) Displays runtime information about processing of chunked transfer encoded packets.
event	(Optional) Displays debug information about packet inspection events.
eventverb	(Optional) Displays the action taken by the ASA in response to an event.
regex	(Optional) Displays information about matching patterns with predefined signatures.

Defaults

All options are enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **debug appfw** command displays detailed information about HTTP application inspection. The **no debug all** and **undebug all** commands turn off all enabled **debug** commands.

Examples

The following example enables the display of detailed information about application inspection:

```
hostname# debug appfw
```

Related Commands

Commands	Description
http-map	Defines an HTTP map for configuring enhanced HTTP inspection.
inspect http	Applies a specific HTTP map to use for application inspection.

debug arp

To show debugging messages for ARP, use the **debug arp** command in privileged EXEC mode. To stop showing debugging messages for ARP, use the **no** form of this command.

debug arp

no debug arp

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debugging messages for ARP:

```
hostname# debug arp
```

Related Commands

Command	Description
arp	Adds a static ARP entry.
show arp statistics	Shows ARP statistics.
show debug	Shows all enabled debuggers.

debug arp-inspection

To show debugging messages for ARP inspection, use the **debug arp-inspection** command in privileged EXEC mode. To stop showing debugging messages for ARP inspection, use the **no** form of this command.

debug arp-inspection

no debug arp-inspection

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	—	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debugging messages for ARP inspection:

```
hostname# debug arp-inspection
```

Related Commands

Command	Description
arp	Adds a static ARP entry.
arp-inspection	For transparent firewall mode, inspects ARP packets to prevent ARP spoofing.
show debug	Shows all enabled debuggers.

debug asdm history

To view debugging information for ASDM, use the **debug asdm history** command in privileged EXEC mode.

debug asdm history *level*

Syntax Description

level	(Optional) Specifies the debugging level.

Defaults

The default debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was changed from the **debug pdm history** command to the **debug asdm history** command.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example enables level 1 debugging of ASDM:

```
hostname# debug asdm history
debug asdm history enabled at level 1

hostname#
```

Related Commands

Command	Description
show asdm history	Displays the contents of the ASDM history buffer.

debug auto-update

To display auto-update client and server debugging information, use the **debug auto-update** command in privileged EXEC mode. To disable the display of auto-update client and server debugging information, use the **no** form of this command.

debug auto-update client | server [*level*]

no debug auto-update client | server [*level*]

Syntax Description

client	Identifies the auto-update client.
level	(Optional) Sets the level at which to display debugging messages. The range of values is between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.
server	Identifies the auto-update server.

Defaults

The default value for the debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following is sample output from the **debug auto-update** and the **show debug auto-update** commands.

```
hostname# debug auto-update client
hostname# debug auto-update server
hostname# show debug auto-update
debug auto-update client enabled at level 1
debug auto-update server enabled at level 1
```

Related Commands

Command	Description
show debug auto	Displays the current auto-update debugging configuration.

debug boot-mem

To display boot memory debugging information, use the **debug boot-mem** command in privileged EXEC mode. To disable the display of debugging information, use the **no** form of this command.

debug boot-mem [*level*]

no debug boot-mem [*level*]

Syntax Description

level	(Optional) Sets the level at which to display debugging messages. The range of values is between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default value for the debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following is sample output from the **debug boot-mem** and the **show debug boot-mem** commands.

```
hostname# debug boot-mem
debug boot-mem enabled at level 1
hostname# show debug boot-mem
debug boot-mem enabled at level 1
```

Related Commands

Command	Description
show debug boot	Displays the current boot memory debugging configuration.

debug boot-module

To display boot module (SSM) debugging information, use the **debug boot-module** command in privileged EXEC mode. To disable the display of debugging information, use the **no** form of this command.

debug boot-module [*level*]

no debug boot-module [*level*]

Syntax Description

level	(Optional) Sets the level to display debugging messages. The range of values is between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default value for the debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
8.0(2)	This command was introduced.
8.6(1)	Supports software modules such as IPS. Supports the ASA 5512-X, 5515-X, 5525-X, 5545-X, and 5555-X.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following is sample output from the **debug boot-module** command:

```
hostname# debug boot-module
debug boot-module enabled at level 1
```

Related Commands

Command	Description
show debug boot-mem	Displays the current boot memory debugging configuration.

debug cluster

To display ASA cluster debug information, use the **debug cluster** command in privileged EXEC mode. To disable the display of debug information, use the **no** form of this command.

debug cluster [**ccp** | **datapath** | **fsm** | **general** | **hc** | **license** | **rpc** | **transport**] [*level*]

no debug cluster [**ccp** | **datapath** | **fsm** | **general** | **hc** | **license** | **rpc** | **transport**]

Syntax Description

level	(Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.
ccp	(Optional) Displays debug messages for the cluster control protocol.
datapath	(Optional) Displays debug messages for the datapath.
fsm	(Optional) Displays debug messages for the finite state machine.
general	(Optional) Displays general clustering debug messages.
hc	(Optional) Displays debug messages for the health check.
license	(Optional) Displays debug messages for the cluster license.
rpc	(Optional) Displays debug messages for the RPC module.
transport	(Optional) Displays debug messages for the transport service.

Command Default

If you do not specify a debug type when enabling debug messages, then all types are enabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example enables debug messages for all types:

```
hostname# debug cluster
```

Related Commands

Command	Description
debug lacp cluster	Enables debug messages for cluster Link Aggregation Control Protocol (cLACP).

debug context

To show debugging messages when you add or delete a security context, use the **debug context** command in privileged EXEC mode. To stop showing debugging messages for contexts, use the **no** form of this command.

debug context [*level*]

no debug context [*level*]

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debug messages for context management:

```
hostname# debug context
```

Related Commands

Command	Description
context	Creates a security context in the system configuration and enters context configuration mode.
show context	Shows context information.
show debug	Shows all enabled debuggers.

debug cplane

To show debugging messages about the control plane that connects internally to an SSM, use the **debug cplane** command in privileged EXEC mode. To stop showing debugging messages for the control plane, use the **no** form of this command.

debug cplane [*level*]

no debug cplane [*level*]

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debugging messages for the control plane:

```
hostname# debug cplane
```

Related Commands

Command	Description
hw-module module recover	Recovers an intelligent SSM by loading a recovery image from a TFTP server.
hw-module module reset	Shuts down an SSM and performs a hardware reset.
hw-module module reload	Reloads the intelligent SSM software.

Command	Description
hw-module module shutdown	Shuts down the SSM software in preparation for being powered off without losing configuration data.
show module	Shows SSM information.

debug crypto ca

To show debugging messages for PKI activity (used with CAs), use the **debug crypto ca** command in privileged EXEC mode. To disable the display of debugging messages for PKI, use the **no** form of this command.

debug crypto ca [**messages** | **transactions**] [*level*]

no debug crypto ca [**messages** | **transactions**] [*level*]

Syntax Description

messages	(Optional) Shows only debugging messages for PKI input and output messages.
transactions	(Optional) Shows only debugging messages for PKI transactions.
level	(Optional) Sets the level to display debugging messages.The range is between 1 and 255. To display additional messages at higher levels, set the level to a higher number. Level 1 (the default) shows messages only when errors occur. Level 2 shows warnings. Level 3 shows informational messages. Levels 4 and up show additional information for troubleshooting.

Defaults

By default, this command shows all debugging messages. The default level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debugging messages for PKI:

```
hostname# debug crypto ca
```

Related Commands

Command	Description
debug crypto engine	Shows debugging messages for the crypto engine.
debug crypto ipsec	Shows debugging messages for IPsec.
debug crypto isakmp	Shows debugging messages for ISAKMP.

debug crypto condition

To filter debugging messages for IPSec and ISAKMP based on the specified conditions, use the **debug crypto condition** command in privileged EXEC mode. To disable a single filtering condition without affecting other conditions, use the **no** form of this command.

debug crypto condition [[**peer [address** *peer_addr*] **subnet** *subnet_mask*]] | [**user** *user_name*] | [**group** *group_name*] | [spi *spi*] | [**reset**]

[no] debug crypto condition [[**peer [address** *peer_addr*] **subnet** *subnet_mask*]] | [**user** *user_name*] | [**group** *group_name*] | [**spi** *spi*] | [**reset**]

Syntax Description

group *group_name*	Specifies the group being used and the client group name.
peer *peer_addr*	Specifies the IPsec peer and its IP address
reset	Clears all filtering conditions and disables filtering.
spi *spi*	Specifies the IPsec SPI.
subnet *subnet_mask*	Specifies the subnet and subnet mask that are associated with the specified IP address.
user *user_name*	Specifies the client being used and the client username.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

The **debug crypto condition** command does not affect the display or logging of syslog messages. This feature is not stored in the configuration, and must be reset after each power cycle.

Examples

The following examples configure a filter for the network, 10.1.1.0 and for the peer, 10.2.2.2:

```
hostname# debug crypto condition peer address 10.1.1.0 subnet 255.255.255.0
hostname# debug crypto condition peer address 10.2.2.2
```

The following example configures a filter for the user, “example_user”:

```
hostname# debug crypto condition user example_user
```

The following example clears the debugging filters:

```
hostname# debug crypto condition reset
```

Related Commands

Command	Description
debug crypto condition error	Shows debugging messages whether or not filtering conditions have been specified.
debug crypto condition unmatched	Shows debugging messages for IPsec and ISAKMP that do not include sufficient context information for filtering.
show crypto debug-condition	Shows the configured filters for IPsec and ISAKMP debugging messages.

debug crypto condition error

To show debugging messages for IPSec and ISAKMP whether or not they match any of the configured filters, use the **debug crypto condition error** command in privileged EXEC mode. To disable the display of debugging messages for IPsec and ISAKMP whether or not they match any of the configured filters, use the **no** form of this command.

debug crypto condition error [[**ipsec | isakmp**]

[**no**] **debug crypto condition error** [**ipsec | isakmp**]

Syntax Description

ipsec	Specifies the IPsec debugging messaging system.
isakmp	Specifies the ISAKMP debugging messaging system.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

The **debug crypto condition error** command does not affect the display or logging of syslog messages. This feature is not stored in the configuration, and must be reset after each power cycle.

Examples

The following example configures IPsec messages to appear whether or not filtering conditions have been specified:

```
hostname# debug crypto condition error ipsec
```

Related Commands

Command	Description
debug crypto condition	Sets filtering conditions for IPsec and ISAKMP debugging messages.

Command	Description
debug crypto condition unmatched	Shows debugging messages for IPsec and ISAKMP that do not include sufficient context information for filtering.
show crypto debug-condition	Shows the configured filters for IPsec and ISAKMP debugging messages.

debug crypto condition unmatched

To show debugging messages for IPsec and ISAKMP that do not include sufficient context information for filtering, use the **debug crypto condition unmatched** command in privileged EXEC mode. To filter debugging messages for IPSec and ISAKMP that do not include sufficient context information, use the **no** form of this command.

debug crypto condition unmatched [[**ipsec | isakmp**]

[**no**] **debug crypto condition unmatched** [**ipsec | isakmp**]

Syntax Description

ipsec	Specifies the IPSec debugging messaging system.
isakmp	Specifies the ISAKMP debugging messaging system.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

The **debug crypto condition unmatched** command does not affect the display or logging of syslog messages. This feature is not stored in the configuration, and must be reset after each power cycle.

Examples

The following example configures the filter to allow IPsec messages with insufficient context to appear:

```
hostname# debug crypto condition unmatched ipsec
```

Related Commands

Command	Description
debug crypto condition	Sets filtering conditions for IPsec and ISAKMP debugging messages.

Command	Description
debug crypto condition error	Shows debugging messages whether or not filtering conditions have been specified.
show crypto debug-condition	Shows the configured filters for IPsec and ISAKMP debugging messages.

debug crypto ca server

To set the local CA server debugging message level and begin listing associated debugging messages, use the **debug crypto ca server** command in ca server configuration mode. To disable the display of all debugging messages, use the **no** form of the command.

debug crypto ca server [*level*]

no debug crypto ca server [*level*]

Syntax Description

level	Sets the level to display associated debugging messages. The range of values is between 1 and 255.

Defaults

The default debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ca server configuration	•	—	•	—	—
Global configuration	•	—	•	—	—
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks. Levels 5 and higher are reserved for raw data dumps and should be avoided during normal debugging because of excessive debugging output.

Examples

The following example sets the debugging level to 3:

```
hostname(config-ca-server)# debug crypto ca server 3
hostname(config-ca-server)#
```

The following example turns off all debugging:

```
hostname(config-ca-server)# no debug crypto ca server
hostname(config-ca-server)#
```

Related Commands

Command	Description
cdp-url	Specifies the certificate revocation list (CRL) distribution point (CDP) to be included in the certificates issued by the CA.
crypto ca server	Provides access to the ca server configuration mode CLI command set, which allows you to configure and manage the local CA.
database path	Specifies a path or location for the local CA server database.
show crypto ca server	Displays the characteristics of the certificate authority configuration on the ASA in ASCII text format.
show crypto ca server certificate	Displays the local CA configuration in base64 format.
show crypto ca server crl	Displays the current CRL of the local CA.

debug crypto condition error

To show debugging messages for IPsec and ISAKMP whether or not they match any of the configured filters, use the **debug crypto condition error** command in privileged EXEC mode. To disable the display of debugging messages for IPsec and ISAKMP whether or not they match any of the configured filters, use the **no** form of this command.

debug crypto condition error [**ipsec | isakmp**]

[**no**] **debug crypto condition error** [**ipsec | isakmp**]

Syntax Description

ipsec	Specifies the IPsec debugging messaging system.
isakmp	Specifies the ISAKMP debugging messaging system.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

The **debug crypto condition error** command does not affect the display or logging of syslog messages. This feature is not stored in the configuration, and must be reset after each power cycle.

Examples

The following example configures IPsec messages to appear whether or not filtering conditions have been specified:

```
hostname# debug crypto condition error ipsec
```

Related Commands

Command	Description
debug crypto condition	Sets filtering conditions for IPsec and ISAKMP debugging messages.
debug crypto condition unmatched	Shows debugging messages for IPsec and ISAKMP that do not include sufficient context information for filtering.
show crypto debug-condition	Shows the configured filters for IPsec and ISAKMP debugging messages.

debug crypto engine

To show debugging messages for the crypto engine, use the **debug crypto engine** command in privileged EXEC mode. To disable the display of debugging messages for the crypto engine, use the **no** form of this command.

debug crypto engine [*level*]

no debug crypto engine [*level*]

Syntax Description

level	(Optional) Sets the level to display debugging messages. The range of values is between 1 and 255. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debugging messages for the crypto engine:

```
hostname# debug crypto engine
```

Related Commands

Command	Description
debug crypto ca	Shows debugging messages for the CA.
debug crypto ipsec	Shows debugging messages for IPsec.
debug crypto ikev1	Shows debugging messages for IKEv1.
debug crypto ikev2	Shows debugging messages for IKEv2.

debug crypto ike-common

To show debugging processes that involve the IKE protocol, use the **debug crypto ike-common** command in privileged EXEC mode. To stop showing the debugging messages, use the **no** form of this command:

debug crypto ike-common [*level*]

no debug crypto ike-common [*level*]

Syntax Descriptiong

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number. Level 1 (the default) shows messages only when errors occur. Levels 2 through 7 show additional information. Level 254 shows decrypted IKE packets in a human readable format. Level 255 shows hexadecimal dumps of decrypted IKE packets.

ing

Defaults

The default level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.4(1)	The command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debugging messages processes involving the IKE protocol:

```
hostname# debug crypto ike-common
```

Related Commands

Command	Description
debug crypto ca	Shows debugging messages for the CA.
debug crypto engine	Shows debugging messages for the crypto engine.

Command	Description
debug crypto ipsec	Shows debugging messages for IPsec.
debug crypto ikev1	Shows debugging messages for IKEv1.
debug crypto ikev2	Shows debugging messages for IKEv2.

debug crypto ikev1

To show debug messages for IKEv1, use the **debug crypto ikev1** command in privileged EXEC mode. To stop showing the debugging messages, use the **no** form of this command:

debug crypto ikev1 [*level*] [**timers**]

no debug crypto ikev1 [*level*] [**timers**]

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number. Level 1 (the default) shows messages only when errors occur. Levels 2 through 7 show additional information. Level 254 shows decrypted IKEv1 packets in a human readable format. Level 255 shows hexadecimal dumps of decrypted IKEv1 packets.
timers	(Optional) Shows debugging messages for IKEv1 timer expiration.

Defaults

The default level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.4(1)	The command name changed from **debug crypto isakmp** to **debug crypto ikev1**.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debugging messages for IKEv1:

```
hostname# debug crypto ikev1
```

Related Commands

Command	Description
debug crypto ca	Shows debugging messages for the CA.
debug crypto engine	Shows debugging messages for the crypto engine.
debug crypto ipsec	Shows debugging messages for IPsec.
debug crypto ikev2	Shows debugging messages for IKEv2.

debug crypto ikev2

To show debugging messages for IKEv2, use the **debug crypto ikev2** command in privileged EXEC mode. To stop showing the debugging messages, use the **no** form of this command:

debug crypto ikev2 {**ha** | **platform** | **protocol** | **timers**} [*level*]

no debug crypto ikev2 {**ha** | **platform** | **protocol** | **timers**} [*level*]

Syntax Description

ha	Shows debugging messages for IKEv1 high availability.
level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number. Level 1 (the default) shows messages only when errors occur. Levels 2 through 7 show additional information. Level 254 shows decrypted IKEv1 packets in a human-readable format. Level 255 shows hexadecimal dumps of decrypted IKEv1 packets.
platform	Shows debugging messages about ASA processing of IKEv2 vs. protocol specific exchanges, such as AAA interfacing, session manager, and the ASA cryptographic module performing encryption and decryption.
protocol	Shows debugging messages about the IKEv1 protocol.
timers	(Optional) Shows debugging messages for IKEv1 timer expiration.

Defaults

The default level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.4(1)	The command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debug messages for IKEv2 protocol:

```
hostname# debug crypto ikev1 protocol
```

Related Commands

Command	Description
debug crypto ca	Shows debugging messages for the CA.
debug crypto engine	Shows debugging messages for the crypto engine.
debug crypto ipsec	Shows debugging messages for IPsec.
debug crypto ikev1	Shows debugging messages for IKEv1.

debug crypto ss-api

To show debugging messages for the crypto secure socket API, use the **debug crypto ss-api** command in privileged EXEC mode. To disable the display of these debugging messages, use the **no** form of this command.

debug crypto ss-api [*level*]

no debug crypto ss-api [*level*]

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debugging messages for the crypto secure socket API:

```
hostname# debug crypto ss-api
```

Related Commands

Command	Description
debug crypto ca	Shows debugging messages for the CA.
debug crypto engine	Shows debugging messages for the crypto engine.
debug crypto ikev1	Shows debugging messages for IKEv1.
debug crypto ikev2	Shows debugging messages for IKEv2.

debug crypto vpnclient

To show crypto debugging messages for the EasyVPN client, use the **debug crypto vpnclient** command in privileged EXEC mode. To stop showing the debugging messages, use the **no** form of this command:

debug crypto vpnclient [*level*]

no debug crypto vpnclient [*level*]

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables crypto debugging messages for the Easy VPN client:

```
hostname# debug crypto vpnclient
```

Related Commands

Command	Description
debug crypto ca	Shows debugging messages for the CA.
debug crypto engine	Shows debugging messages for the crypto engine.
debug crypto ikev1	Shows debugging messages for IKEv1.
debug crypto ikev2	Shows debugging messages for IKEv2.

debug crypto ipsec

To show debugging messages for IPsec, use the **debug crypto ipsec** command in privileged EXEC mode. To stop showing debugging messages for IPsec, use the **no** form of this command.

debug crypto ipsec [*level*]

no debug crypto ipsec [*level*]

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debugging messages for IPsec:

```
hostname# debug crypto ipsec
```

Related Commands

Command	Description
debug crypto ca	Shows debugging messages for the CA.
debug crypto engine	Shows debugging messages for the crypto engine.
debug crypto ikev1	Shows debugging messages for IKEv1.
debug crypto ikev2	Shows debugging messages for IKEv2.

debug ctiqbe

To show debugging messages for CTIQBE application inspection, use the **debug ctiqbe** command in privileged EXEC mode. To stop showing debugging messages for CTIQBE application inspection, use the **no** form of this command.

debug ctiqbe [*level*]

no debug ctiqbe [*level*]

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default value for the debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To see the current debugging command settings, enter the **show debug** command. To stop the debugging output, enter the **no debug** command. To stop all debugging messages from being displayed, enter the **no debug all** command.

Note Enabling the **debug ctiqbe** command may slow down traffic on busy networks.

Examples

The following example enables debugging messages at the default level (1) for CTIQBE application inspection:

```
hostname# debug ctiqbe
```

Related Commands

Command	Description
inspect ctiqbe	Enables CTIQBE application inspection.
show ctiqbe	Displays information about CTIQBE sessions established through the ASA.
show conn	Displays the connection state for different connection types.
timeout	Sets the maximum idle time duration for different protocols and session types.

debug ctl-provider

To show debugging messages for Certificate Trust List (CTL) providers, use the **debug ctl-provider** command in privileged EXEC mode. To stop showing debugging messages, use the **no** form of this command.

debug ctl-provider [**errors** | **events** | **parser**]

no debug ctl-provider [**errors** | **events** | **parser**]

Syntax Description

errors	Specifies CTL provider error debugging.
events	Specifies CTL provider event debugging.
parser	Specifies CTL provider parser debugging.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debugging messages for CTL provider:

```
hostname# debug ctl-provider
```

Related Commands

Command	Description
ctl	Parses the CTL file from the CTL client and install trustpoints.
ctl-provider	Configures a CTL provider instance in CTL provider mode.
export	Specifies the certificate to be exported to the client.
service	Specifies the port to which the CTL provider listens.

debug cxsc

To show debugging messages for the ASA CX module, use the **debug cxsc** command in privileged EXEC mode. To stop showing debugging messages, use the **no** form of this command.

debug cxsc [**error** | **event** | **message**]

no debug cxsc [**error** | **event** | **message**]

Syntax Description

error	Enables error-level debugging.
event	Enables event-level debugging.
message	Enables message-level debugging.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.4(4.1)	This command was introduced.
9.1(3)	You can now configure ASA CX policies per context.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

When you enable the authentication proxy, the ASA generates a debugging messge when it sends an authentication proxy TLV to the ASA CX module, giving details of the IP and port:

```
DP CXSC Event: Sent Auth proxy tlv for adding Auth Proxy on interface: inside4.
DP CXSC Event: Sent Auth proxy tlv for adding Auth Proxy on interface: cx_inside.
DP CXSC Event: Sent Auth proxy tlv for adding Auth Proxy on interface: cx_outside.
```

When the interface IP address is changed, auth-proxy tlv updates are sent to CXSC:

```
DP CXSC Event: Sent Auth proxy tlv for removing Auth Proxy for interface inside.
DP CXSC Event: Sent Auth proxy tlv for adding Auth Proxy on interface: inside.
```

When a flow is freed on the ASA, the ASA CX module is notified so it can clean up the flow:

```
DP CXSC Msg: Notifying CXSC that flow (handle:275233990) is being freed  for
192.168.18.5:2213 -> 10.166.255.18:80.
```

When the ASA CX module sends a redirect to a client to authenticate, and that redirect is sent to the ASA, the ASA sends it to the ASA CX module. In this example, 192.168.18.3 is the interface address and port 8888 is the authentication proxy port reserved on that interface for the authentication proxy feature:

```
DP CXSC Msg: rcvd authentication proxy data from 192.168.18.5:2214 -> 192.168.18.3:8888,
forwarding to cx
```

When a VPN connection is established on the ASA, and the ASA sends connection information to the ASA CX module:

```
CXSC Event:   Dumping attributes from the vpn session record
CXSC Event:   tunnel->Protocol:        17
CXSC Event:   tunnel->ClientVendor:    SSL VPN Client
CXSC Event:   tunnel->ClientVersion:   Cisco AnyConnect VPN Agent for Windows 2.4.1012
CXSC Event:   Sending VPN RA session data to CXSC
CXSC Event:   sess index:      0x3000
CXSC Event:   sess type id:    3
CXSC Event:   username:        devuser
CXSC Event:   domain:          CN=Users,DC=test,DC=priv
CXSC Event:   directory type:  1
CXSC Event:   login time:      1337124762
CXSC Event:   nac result:      0
CXSC Event:   posture token:
CXSC Event:   public IP:       172.23.34.108
CXSC Event:   assigned IP:     192.168.17.200
CXSC Event:   client OS id:    1
CXSC Event:   client OS:
CXSC Event:   client type:     Cisco AnyConnect VPN Agent for Windows 2.4.1012
CXSC Event:   anyconnect data: , len: 0
```

Related Commands

Command	Description
class	Specifies a class map to use for traffic classification.
class-map	Identifies traffic for use in a policy map.
cxsc	Redirects traffic to the ASA CX module.
cxsc auth-proxy port	Sets the authentication proxy port.
hw-module module password-reset	Resets the module password to the default.
hw-module module reload	Reloads the module.
hw-module module reset	Performs a reset and then reloads the module.
hw-module module shutdown	Shuts down the module.
policy-map	Configures a policy; that is, an association of a traffic class and one or more actions.
session do get-config	Gets the module configuration.
session do password-reset	Resets the module password to the default.
session do setup host ip	Configures the module management address.
show asp table classify domain cxsc	Shows the NP rules created to send traffic to the ASA CX module.
show asp table classify domain cxsc-auth-proxy	Shows the NP rules created for the authentication proxy for the ASA CX module.
show module	Shows the module status.

Command	Description
show running-config policy-map	Displays all current policy map configurations.
show service-policy	Shows service policy statistics.

CHAPTER 14

debug dap through debug http-map Commands

debug dap

To enable logging of Dynamic Access Policy events, use the **debug dap** command in privileged EXEC mode. To disable the logging of DAP debugging messages, use the **no** form of this command.

debug dap {**errors** | **trace**}

no debug dap {**errors** | **trace**}

Syntax Description

errors	Specifies DAP processing errors.
trace	Specifies a DAP function trace.

Defaults

No default value or behaviors.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

The high priority assigned to debugging output can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example shows how to enable DAP trace debugging:

```
hostname # debug dap trace
hostname #
```

Related Commands

Command	Description
dynamic-access-policy-record	Creates a DAP record.

debug ddns

To show debugging messages for DDNS, use the **debug ddns** command in privileged EXEC mode. To disable debugging messages, use the **no** form of this command.

debug ddns

no debug ddns

Syntax Description

This command has no arguments or keywords.

Defaults

The default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

The **debug ddns** command displays detailed information about DDNS. The **undebug ddns** command and the **no debug ddns** command turn off DDNS debugging information.

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example shows an example of enabling DDNS debugging messages:

```
hostname# debug ddns
debug ddns enabled at level 1
```

Related Commands

Command	Description
ddns (DDNS-update-method mode)	Specifies a DDNS update method type for a created DDNS method.
ddns update (interface config mode)	Associates a DDNS update method with a ASA interface or a DDNS update hostname.
ddns update method (global config mode)	Creates a method for dynamically updating DNS resource records.
show running-config ddns	Displays the type and interval of all configured DDNS methods in the running configuration.

debug dhcpc

To enable debugging of the DHCP client, use the **debug dhcpc** command in privileged EXEC mode. To disable debugging, use the **no** form of this command.

debug dhcpc {**detail** | **packet** | **error**} [*level*]

no debug dhcpc {**detail** | **packet** | **error**} [*level*]

Syntax Description

detail	Displays detail event information that is associated with the DHCP client.
error	Displays error messages that are associated with the DHCP client.
level	(Optional) Specifies the debugging level. Valid values range from 1 to 255.
packet	Displays packet information that is associated with the DHCP client.

Defaults

The default debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command displays DHCP client debugging information.

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example shows how to enable debugging for the DHCP client:

```
hostname# debug dhcpc detail 5
debug dhcpc detail enabled at level 5
```

Related Commands

Command	Description
show ip address dhcp	Displays detailed information about the DHCP lease for an interface.
show running-config interface	Displays the running configuration of the specified interface.

debug dhcpd

To enable debugging of the DHCP server, use the **debug dhcpd** command in privileged EXEC mode. To disable debugging, use the **no** form of this command.

debug dhcpd {**event** | **packet**} [*level*]

no debug dhcpd {**event** | **packet**} [*level*]

Syntax Description

event	Displays event information that is associated with the DHCP server.
level	(Optional) Specifies the debugging level. Valid values range from 1 to 255.
packet	Displays packet information that is associated with the DHCP server.

Defaults

The default debug level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **debug dhcpd event** command displays event information about the DHCP server. The **debug dhcpd packet** command displays packet information about the DHCP server.

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example shows an example of enabling DHCP event debugging:

```
hostname# debug dhcpd event
debug dhcpd event enabled at level 1
```

Related Commands

Command	Description
show dhcpd	Displays DHCP binding, statistical, or state information.
show running-config dhcpd	Displays the current DHCP server configuration.

debug dhcpd ddns

To enable debugging of the DHCP DDNS, use the **debug dhcpd ddns** command in privileged EXEC mode. To disable debugging, use the **no** form of this command.

debug dhcpd ddns [*level*]

no debug dhcpd ddns [*level*]

Syntax Description

level	(Optional) Specifies the debugging level. Valid values range from 1 to 255.

Defaults

The default debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

The **debug dhcpd ddns** command displays detailed information about DHCP and DDNS. The **undebug dhcpd ddns** command and the **no debug dhcpd ddns** command turn off DHCP and DDNS debugging information.

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example shows DHCP DDNS debugging being enabled:

```
hostname# debug dhcpd ddns
debug dhcpd ddns enabled at level 1
```

Related Commands

Command	Description
dhcpd update dns	Enables a DHCP server to perform DDNS updates.
show running-config dhcpd	Displays the current DHCP server configuration.
show running-config ddns	Display the DDNS update methods of the running configuration.

debug dhcprelay

To enable debugging of the DHCP relay server, use the **debug dhcpreleay** command in privileged EXEC mode. To disable debugging, use the **no** form of this command.

debug dhcprelay {**event** | **packet** | **error**} [*level*]

no debug dhcprelay {**event** | **packet** | **error**} [*level*]

Syntax Description

error	Displays error messages that are associated with the DHCP relay agent.
event	Displays event information that is associated with the DHCP relay agent.
level	(Optional) Specifies the debugging level. Valid values range from 1 to 255.
packet	Displays packet information that is associated with the DHCP relay agent.

Defaults

The default debug level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example shows how to enable debugging for DHCP relay agent error messages:

```
hostname# debug dhcprelay error
debug dhcprelay error enabled at level 1
```

Related Commands

Command	Description
clear configure dhcprelay	Removes all DHCP relay agent settings.
clear dhcprelay statistics	Clears the DHCP relay agent statistic counters.
show dhcprelay statistics	Displays DHCP relay agent statistic information.
show running-config dhcprelay	Displays the current DHCP relay agent configuration.

debug disk

To display file system debugging information, use the **debug disk** command in privileged EXEC mode. To disable the display of debugging information, use the **no** form of this command.

debug disk {**file** | **file-verbose** | **filesystem**} [*level*]

no debug disk {**file** | **file-verbose** | **filesystem**}

Syntax Description

file	Enables file-level disk debugging messages.
file-verbose	Enables verbose file-level disk debugging messages.
filesystem	Enables file system debugging messages.
level	(Optional) Sets the level to display debugging messages. The range of values is between 1 and 255. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default value for the debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following is sample output from the **debug disk** and the **show debug** commands:

```
hostname# debug disk file
debug disk file enabled at level 1
hostname# show debug
debug vpn-sessiondb  enabled at level 1
hostname# dir
IFS: Opening: file flash:/, flags 1, mode 0
IFS: Opened: file flash:/ as fd 3
```

```
IFS: Getdent: fd 3
IFS: Getdent: fd 3
IFS: Getdent: fd 3
IFS: Getdent: fd 3

Directory of flash:/
IFS: Close: fd 3
IFS: Opening: file flash:/, flags 1, mode 0

4      -rw-  5124096     14:42:27 Apr 04 2005  cdisk.binIFS: Opened: file flash:/ as fd 3

9      -rw-  5919340     14:53:39 Apr 04 2005  ASDMIFS: Getdent: fd 3

11     drw-  0           15:18:56 Apr 21 2005  syslog
IFS: Getdent: fd 3
IFS: Getdent: fd 3
IFS: Getdent: fd 3
IFS: Close: fd 3

16128000 bytes total (5047296 bytes free)
```

Related Commands

Command	Description
show debug	Displays the current debugging configuration.

debug dns

To show debugging messages for DNS, use the **debug dns** command in privileged EXEC mode. To stop showing debugging messages for DNS, use the **no** form of this command.

debug dns [**resolver** | **all**] [*level*]

no debug dns [**resolver** | **all**] [*level*]

Syntax Description

all	(Default) Shows all messages, including messages about the DNS cache.
level	(Optional) Sets the debugging message level to display, which can be either 1 or 2. The default is 1. To display additional messages at higher levels, set the level to a higher number.
resolver	(Optional) Shows only DNS resolver messages.

Defaults

The default level is 1. If you do not specify any keywords, the ASA shows all mesages.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debugging messages for DNS:

```
hostname# debug dns
```

Related Commands

Command	Description
class-map	Defines the traffic class to which to apply security actions.
inspect dns	Enables DNS application inspection.
policy-map	Associates a class map with specific security actions.
service-policy	Applies a policy map to one or more interfaces.

debug eap

To enable logging of EAP events to debug NAC messaging, use the **debug eap** command in privileged EXEC mode. To disable the logging of EAP debugging messages, use the **no** form of this command.

debug eap {**all** | **errors** | **events** | **packets** | **sm**}

no debug eap {**all** | **errors** | **events** | **packets** | **sm**}

Syntax Description

all	Enables logging of debugging messages about all EAP information.
errors	Enables logging of EAP packet errors.
events	Enables logging of EAP session events.
packets	Enables logging of debugging messages about EAP packet information.
sm	Enables logging of debugging messages about EAP state machine information.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

When you use this command, the ASA records EAP session state changes and EAP status query events, and generates a complete record of EAP and packet contents in hexadecimal format.

The high priority assigned to debugging output can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example enables the logging of all EAP session events:

```
hostname# debug eap events
hostname#
```

The following example enables the logging of all EAP debugging messages:

```
hostname# debug eap all
hostname#
```

The following example disables the logging of all EAP debugging messages:

```
hostname# no debug eap
hostname#
```

Related Commands

Command	Description
debug eou	Enables logging of EAPoUDP events to debug NAC messaging.
debug nac	Enables logging of NAC events.
eou initialize	Clears the resources assigned to one or more NAC sessions and initiates a new, unconditional posture validation for each of the sessions.
eou revalidate	Forces immediate posture revalidation of one or more NAC sessions.
show debug	Displays a current debugging configuration.

debug eigrp fsm

To display debugging information the DUAL finite state machine, use the **debug eigrp fsm** command in privileged EXEC mode. To disable the debugging information display, use the **no** form of this command.

debug eigrp fsm

no debug eigrp fsm

Syntax Description

This command has no arguments or keywords.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

This command lets you observe EIGRP feasible successor activity and to determine whether or not route updates are being installed and deleted by the routing process.

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco TAC. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following is sample output from the **debug eigrp fsm** command:

```
hostname# debug eigrp fsm

DUAL: dual_rcvupdate(): 172.25.166.0 255.255.255.0 via 0.0.0.0 metric 750080/0
DUAL: Find FS for dest 172.25.166.0 255.255.255.0. FD is 4294967295, RD is 4294967295
found
DUAL: RT installed 172.25.166.0 255.255.255.0 via 0.0.0.0
DUAL: dual_rcvupdate(): 192.168.4.0 255.255.255.0 via 0.0.0.0 metric 4294967295/4294967295
DUAL: Find FS for dest 192.168.4.0 255.255.255.0. FD is 2249216, RD is 2249216
DUAL:   0.0.0.0 metric 4294967295/4294967295not found Dmin is 4294967295
```

```
DUAL: Dest 192.168.4.0 255.255.255.0 not entering active state.
DUAL: Removing dest 192.168.4.0 255.255.255.0, nexthop 0.0.0.0
DUAL: No routes. Flushing dest 192.168.4.0 255.255.255.0
```

In the fist line, DUAL stands for diffusing update algorithm. It is the basic mechanism within EIGRP that makes the routing decisions. The next three fields are the Internet address, mask of the destination network, and the address through which the update was received. The metric field shows the metric stored in the routing table and the metric advertised by the neighbor sending the information. If shown, the term “Metric... inaccessible” usually means that the neighbor router no longer has a route to the destination, or the destination is in a hold-down state.

In the following output, EIGRP is attempting to find a feasible successor for the destination. Feasible successors are part of the DUAL loop avoidance methods. The FD field includes more loop avoidance state information. The RD field is the reported distance, which is the metric used in update, query, or reply packets. The indented line with the “not found” message means a feasible successor was not found for 192.168.4.0, and EIGRP must start a diffusing computation. This means it begins to actively probe (sends query packets about destination 192.168.4.0) the network looking for alternate paths to 192.164.4.0.

```
DUAL: Find FS for dest 192.168.4.0 255.255.255.0. FD is 2249216, RD is 2249216
DUAL:   0.0.0.0 metric 4294967295/4294967295not found Dmin is 4294967295
```

The following output indicates the route DUAL successfully installed into the routing table:

```
DUAL: RT installed 172.25.166.0 255.255.255.0 via 0.0.0.0
```

The following output shows that no routes to the destination were discovered and that the route information is being removed from the topology table:

```
DUAL: Dest 192.168.4.0 255.255.255.0 not entering active state.
DUAL: Removing dest 192.168.4.0 255.255.255.0, nexthop 0.0.0.0
DUAL: No routes. Flushing dest 192.168.4.0 255.255.255.0
```

Related Commands

Command	Description
show eigrp topology	Displays the EIGRP topology table.

debug eigrp neighbors

To display debugging information for neighbors discovered by EIGRP, use the **debug eigrp neighbors** command in privileged EXEC mode. To disable the debugging information display, use the **no** form of this command.

debug eigrp neighbors [**siatimer** | **static**]

no debug eigrp neighbors [**siatimer** | **static**]

Syntax Description

siatimer	(Optional) Displays EIGRP stuck-in-active (SIA) messages.
static	(Optional) Displays EIGRP static neighbor messages.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco TAC. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following is sample output from the **debug eigrp neighbors static** command. The example shows a static neighbor being added and then removed, and the corresponding debugging messages.

```
hostname# debug eigrp neighbors static

EIGRP Static Neighbors debugging is on

hostname# configure terminal
hostname(config) router eigrp 100
hostname(config-router)# neighbor 10.86.194.3 interface outside
hostname(config-router)#
```

```
EIGRP: Multicast Hello is disabled on Ethernet0/0!
EIGRP: Add new static nbr 10.86.194.3 to AS 100 Ethernet0/0

hostname(config-router)# no neighbor 10.86.194.3 interface outside
hostname(config-router)#

EIGRP: Static nbr 10.86.194.3 not in AS 100 Ethernet0/0 dynamic list
EIGRP: Delete static nbr 10.86.194.3 from AS 100 Ethernet0/0
EIGRP: Multicast Hello is enabled on Ethernet0/0!

hostname(config-router)# no debug eigrp neighbors static

EIGRP Static Neighbors debugging is off
```

Related Commands

Command	Description
neighbor	Defines an EIGRP neighbor.
show eigrp neighbors	Displays the EIGRP neighbor table.

debug eigrp packets

To display debugging information for EIGRP packets, use the **debug eigrp packets** command in privileged EXEC mode. To disable the debugging information display, use the **no** form of this command.

debug eigrp packets [**SIAquery | SIAreply | ack | hello | probe | query | reply | request | retry | stub | terse | update | verbose**]

no debug eigrp packets [**SIAquery | SIAreply | ack | hello | probe | query | reply | request | retry | stub | terse | update | verbose**]

Syntax Description

ack	(Optional) Limits the debugging output to EIGRP ack packets.
hello	(Optional) Limits the debugging output to EIGRP hello packets.
probe	(Optional) Limits the debugging output to EIGRP probe packets.
query	(Optional) Limits the debugging output to EIGRP query packets.
reply	(Optional) Limits the debugging output to EIGRP reply packets.
request	(Optional) Limits the debugging output to EIGRP request packets.
retry	(Optional) Limits the debugging output to EIGRP retry packets.
SIAquery	(Optional) Limits the debugging output to EIGRP stuck in active query packets.
SIAreply	(Optional) Limits the debugging output to EIGRP stuck in active reply packets.
stub	(Optional) Limits the debugging output to EIGRP stub routing packets.
terse	(Optional) Displays all EIGRP packets except hello packets.
update	(Optional) Limits the debugging output to EIGRP update packets.
verbose	(Optional) Outputs all packet debugging messages.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

You can specify more than one packet type in a single command, for example:

```
hostname# debug eigrp packets query reply
```

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco TAC. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following is sample output from the **debug eigrp packets** command:

```
hostname# debug eigrp packets

EIGRP: Sending HELLO on Ethernet0/1
       AS 109, Flags 0x0, Seq 0, Ack 0
EIGRP: Sending HELLO on Ethernet0/1
       AS 109, Flags 0x0, Seq 0, Ack 0
EIGRP: Sending HELLO on Ethernet0/1
       AS 109, Flags 0x0, Seq 0, Ack 0
EIGRP: Received UPDATE on Ethernet0/1 from 192.195.78.24,
       AS 109, Flags 0x1, Seq 1, Ack 0
EIGRP: Sending HELLO/ACK on Ethernet0/1 to 192.195.78.24,
       AS 109, Flags 0x0, Seq 0, Ack 1
EIGRP: Sending HELLO/ACK on Ethernet0/1 to 192.195.78.24,
       AS 109, Flags 0x0, Seq 0, Ack 1
EIGRP: Received UPDATE on Ethernet0/1 from 192.195.78.24,
       AS 109, Flags 0x0, Seq 2, Ack 0
```

The output shows the transmission and receipt of EIGRP packets. The sequence and acknowledgment numbers used by the EIGRP reliable transport algorithm are shown in the output. Where applicable, the network-layer address of the neighboring router is also included.

Related Commands

Command	Description
show eigrp traffic	Displays the number of EIGRP packets sent and received.

debug eigrp transmit

To display transmission messages sent by EIGRP, use the **debug eigrp transmit** command in privileged EXEC mode. To disable the debugging information display, use the **no** form of this command.

debug eigrp transmit [**ack**] [**build**] [**detail**] [**link**] [**packetize**] [**peerdown**] [**sia**] [**startup**] [**strange**]

no debug eigrp transmit [**ack**] [**build**] [**detail**] [**link**] [**packetize**] [**peerdown**] [**sia**] [**startup**] [**strange**]

Syntax Description

ack	(Optional) Displays information for acknowledgment (ACK) messages sent by the system.
build	(Optional) Displays build information messages (messages that indicate that a topology table was either successfully built or could not be built).
detail	(Optional) Displays additional detail for debugging output.
link	(Optional) Displays information regarding topology table linked-list management.
packetize	(Optional) Displays information regarding packetized events.
peerdown	(Optional) Displays information regarding the effect on packet generation when a peer is down.
sia	(Optional) Displays stuck-in-active messages.
startup	(Optional) Displays information regarding peer startup and initialization packets that have been transmitted.
strange	(Optional) Displays unusual events relating to packet processing.

Defaults

If at least one transmission event is not specified, all transmission events are shown in the debugging output.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

You can specify more than one transmission event in a single command, For example:

```
hostname# debug eigrp ack build link
```

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco TAC. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following is sample output from the **debug eigrp transmit** command. The example shows a **network** command being entered and the transmission event debugging message that is generated.

```
hostname# debug eigrp transmit

EIGRP Transmission Events debugging is on

    (ACK, PACKETIZE, STARTUP, PEERDOWN, LINK, BUILD, STRANGE, SIA, DETAIL)

hostname# configure terminal
hostname(config)# router eigrp 100
hostname(config-router)# network 10.86.194.0 255.255.255.0

DNDB UPDATE 10.86.194.0 255.255.255.0, serno 0 to 1, refcount 0

hostname(config-router)# no debug eigrp transmit

EIGRP Transmission Events debugging is off
```

Related Commands

Command	Description
show eigrp traffic	Displays the number of EIGRP packets sent and received.

debug eigrp user-interface

To display debugging information for EIGRP user events, use the **debug eigrp user-interface** command in privileged EXEC mode. To disable the debugging information display, use the **no** form of this command.

debug eigrp user-interface

no debug eigrp user-interface

Syntax Description

This command has no arguments or keywords.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco TAC. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following is sample output from the **debug eigrp user-interface** command. The output is caused by an administrator removing a **passive-interface** command from an EIGRP configuration.

```
hostname# debug eigrp user-interface

EIGRP UI Events debugging is on

hostname# configure terminal
hostname(config) router eigrp 100
hostname(config-router)# no passive-interface inside

CSB2AF: FOUND (AS=100, Name=, VRF=0, AFI=ipv4)
```

```
hostname(config-router)# no debug eigrp user-interface

EIGRP UI Events debugging is off
```

Related Commands

Command	Description
router eigrp	Enables an EIGRP routing process and enters router configuration mode.
show running-config eigrp	Displays the EIGRP commands in the running configuration.

debug email

To display e-mail debugging information, use the **debug email** command in privileged EXEC mode. To disable the display of e-mail debugging information, use the **no** form of this command.

debug email [*level*]

no debug email [*level*]

Syntax Description

level	(Optional) Sets the level to display debugging messages. The range of values is between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default value for the debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following is sample output from the **debug email** and the **show debug email** commands:

```
hostname# debug email
debug email enabled at level 1
hostname# show debug email
debug email enabled at level 1
```

Related Commands

Command	Description
show debug	Displays the current debugging configuration.

debug entity

To display MIB debugging information, use the **debug entity** command in privileged EXEC mode. To disable the display of debugging information, use the **no** form of this command.

debug entity [*level*]

no debug entity

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default value for the debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example enables MIB debugging messages. The **show debug** command indicates that MIB debugging messages are enabled.

```
hostname# debug entity
debug entity enabled at level 1
hostname# show debug
debug entity enabled at level 1
hostname#
```

Related Commands

Command	Description
show debug	Displays the current debugging configuration.

debug eou

To enable logging of EAPoUDP events to debug NAC messaging, use the **debug eou** command in privileged EXEC mode. To disable the logging of EAPoUDP debugging messages, use the **no** form of this command.

debug eou {**all** | **eap** | **errors** | **events** | **packets** | **sm**}

no debug eou [**all** | **eap** | **errors** | **events** | **packets** | **sm**]

Syntax Description

all	Enables logging of debugging messages about all EAPoUDP information.
eap	Enables logging of debugging messages about EAPoUDP packets.
errors	Enables logging of EAPoUDP packet errors.
events	Enables logging of EAPoUDP session events.
packets	Enables logging of debugging messages about EAPoUDP packet information.
sm	Enables logging of debugging messages about EAPoUDP state machine information.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

When you use this command, the ASA records EAPoUDP session state changes and timer events, and generates a complete record of EAPoUDP header and packet contents in hexadecimal format.

The high priority assigned to debugging output can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example enables the logging of all EAPoUDP session events:

```
hostname# debug eou events
hostname#
```

The following example enables the logging of all EAPoUDP debugging messages:

```
hostname# debug eou all
hostname#
```

The following example disables the logging of all EAPoUDP debugging messages:

```
hostname# no debug eou
hostname#
```

Related Commands

Command	Description
debug eap	Enables logging of EAP events to debug NAC messaging.
debug nac	Enables logging of NAC events.
eou initialize	Clears the resources assigned to one or more NAC sessions and initiates a new, unconditional posture validation for each of the sessions.
eou revalidate	Forces immediate posture revalidation of one or more NAC sessions.
show debug	Displays the current debugging configuration.

debug esmtp

To show debugging messages for SMTP/ESMTP application inspection, use the **debug esmtp** command in privileged EXEC mode. To stop showing debugging messages for SMTP/ESMTP application inspection, use the **no** form of this command.

debug esmtp [*level*]

no debug esmtp [*level*]

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default value for the debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To see the current debugging command settings, enter the **show debug** command. To stop the debugging output, enter the **no debug** command. To stop all debugging messages from being displayed, enter the **no debug all** command.

Note Enabling the **debug esmtp** command may slow down traffic on busy networks.

Examples

The following example enables debugging messages at the default level (1) for SMTP/ESMTP application inspection:

```
hostname# debug esmtp
```

Related Commands

Command	Description
class-map	Defines the traffic class to which to apply security actions.
inspect esmtp	Enables ESMTP application inspection.
policy-map	Associates a class map with specific security actions.
service-policy	Applies a policy map to one or more interfaces.
show conn	Displays the connection state for different connection types, including SMTP.

debug etherchannel

To display EtherChannel debugging information, use the **debug etherchannel** command in privileged EXEC mode. To disable the display of debugging information, use the **no** form of this command.

debug etherchannel [**all** | **error** | **event**]

no debug etherchannel [**all** | **error** | **event**]

Syntax Description

all	(Optional) Displays all EtherChannel information.
event	(Optional) Displays major EtherChannel events.
error	(Optional) Displays EtherChannel errors.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
8.4(1)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example enables EtherChannel debug messages for events. The **show debug** command indicates that EtherChannel debugging messages are enabled.

```
hostname# debug etherchannel event
hostname# show debug
debug etherchannel event enabled
hostname#
```

Related Commands

Command	Description
show debug	Displays the current debugging configuration.

debug fixup

To display detailed information about application inspection, use the **debug fixup** command in privileged EXEC mode. To disable debugging, use the **no** form of this command.

debug fixup

no debug fixup

Defaults

All options are enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **debug fixup** command displays detailed information about application inspection. The **no debug all** or **undebug all** command turns off all enabled **debug** commands.

Examples

The following example enables the display of detailed information about application inspection:

```
hostname# debug fixup
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
inspect *protocol*	Enables application inspection for specific protocols.
policy-map	Associates a class map with specific security actions.

debug fover

To display failover debug information, use the **debug fover** command in privileged EXEC mode. To disable the display of debug information, use the **no** form of this command.

debug fover {**cable** | **cmd-exec** | **fail** | **fmsg** | **ifc** | **open** | **rx** | **rxdmp** | **rxip** | **switch** | **sync** | **tx** | **txdmp** | **txip** | **verify**}

no debug fover {**cable** | **fail** | **fmsg** | **ifc** | **open** | **rx** | **rxdmp** | **rxip** | **switch** | **sync** | **tx** | **txdmp** | **txip** | **verify**}

Syntax Description

cable	Failover LAN status or serial cable status.
cmd-exec	**failover exec** command execution trace.
fail	Failover internal exception.
fmsg	Failover message.
ifc	Network interface status trace.
open	Failover device open.
rx	Failover message receive.
rxdmp	Failover receive message dump (serial console only).
rxip	IP network failover packet receive.
switch	Failover switching status.
sync	Failover configuration/command replication.
tx	Failover message transmit.
txdmp	Failover transmit message dump (serial console only).
txip	IP network failover packet transmit.
verify	Failover message verify.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was modified to include additional debugging keywords.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco TAC. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following is sample output from the **debug fover cmd-exec** command. After debugging is enabled, a **failover exec** command is entered. The results of the **failover exec** command are shown after the debugging output.

```
hostname(config)# debug fover cmd-exec

fover event trace on

hostname(config)# failover exec mate show running-config failover

ci/console: Sending cmd: show runn failovero to peer for execution, seq = 4
ci/console: frep_execv_cmd: replicating exec cmd: show runn failover...
fover_parse: Fover rexec response: seq=4, size=228, data="fail..."
ci/console: Fover rexec waiting at clock tick 2670960
fover_parse: Fover rexec ack: seq = 4, ret_val = 0
ci/console: Fover rexec conteinuer at clock tick: 2671040
ci/console: Fover exec succeeded, seq = 5

failover
failover lan interface failover GigabitEthernet0/3
failover polltime unit 1 holdtime 3
failover key *****
failover link failover GigabitEthernet0/3
failover interface ip failover 10.0.5.1 255.255.255.0 standby 10.0.5.2
ciscoasa(config)#
```

Related Commands

Command	Description
show failover	Displays information about the failover configuration and operational statistics.

debug fsm

To display FSM debugging information, use the **debug fsm** command in privileged EXEC mode. To disable the display of debugging information, use the **no** form of this command.

debug fsm [*level*]

no debug fsm

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default value for the debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example enables FSM debugging messages. The **show debug** command indicates that FSM debugging messages are enabled.

```
hostname# debug fsm
debug fsm enabled at level 1
hostname# show debug
debug fsm enabled at level 1
hostname#
```

Related Commands

Command	Description
show debug	Displays the current debugging configuration.

debug ftp client

To show debugging messages for FTP, use the **debug ftp client** command in privileged EXEC mode. To disable the display of debugging messages for FTP, use the **no** form of this command.

debug ftp client [*level*]

no debug ftp client [*level*]

Syntax Description

level	(Optional) Sets the level to display debugging messages. The range of values is between 1 and 255. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default value for the debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To see the current debugging command settings, enter the **show debug** command. To disable the debugging message output, enter the **no debug** command. To stop all debugging messages from being displayed, enter the **no debug all** command.

Note Enabling the **debug ftp client** command may slow down traffic on busy networks.

Examples

The following example enables debugging messages at the default level (1) for FTP:

```
hostname# debug ftp client
```

Related Commands

Command	Description
copy	Uploads or downloads image files or configuration files to or from an FTP server.
ftp mode passive	Configures the mode for FTP sessions.
show running-config ftp mode	Displays the FTP client configuration.

debug generic

To display miscellaneous debugging information, use the **debug generic** command in privileged EXEC mode. To disable the display of miscellaneous debugging information, use the **no** form of this command.

debug generic [*level*]

no debug generic

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default value for the debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example enables miscellaneous debug messages. The **show debug** command indicates that miscellaneous debugging messages are enabled.

```
hostname# debug generic
debug generic  enabled at level 1
hostname# show debug
debug generic  enabled at level 1
hostname#
```

Related Commands

Command	Description
show debug	Displays the current debugging configuration.

debug gtp

To display detailed information about GTP inspection, use the **debug gtp** command in privileged EXEC mode. To disable debugging, use the **no** form of this command.

debug gtp {**error** | **event** | **ha** | **parser**}

no debug gtp {**error** | **event** | **ha** | **parser**}

Syntax Description

error	Displays debugging information on errors encountered while processing the GTP message.
event	Displays debugging information on GTP events.
ha option	Debugs information on GTP HA events.
parser	Displays debugging information for parsing the GTP messages.

Defaults

All options are enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **debug gtp** command displays detailed information about GTP inspection. The **no debug all** or **undebug all** command turns off all enabled **debug** commands.

Note GTP inspection requires a special license.

Examples

The following example enables the display of detailed information about GTP inspection:

```
hostname# debug gtp
```

Related Commands

Commands	Description
clear service-policy inspect gtp	Clears global GTP statistics.
gtp-map	Defines a GTP map and enables GTP map configuration mode.
inspect gtp	Applies a GTP map to use for application inspection.
show service-policy inspect gtp	Displays the GTP configuration.
show running-config gtp-map	Shows the GTP maps that have been configured.

debug h323

To show debugging messages for H.323, use the **debug h323** command in privileged EXEC mode. To stop showing debugging messages for H.323, use the **no** form of this command.

debug h323 {**h225** | **h245** | **ras**} [**asn** | **event**]

no debug h323 {**h225** | **h245** | **ras**} [**asn** | **event**]

Syntax Description

h225	Specifies H.225 signaling.
h245	Specifies H.245 signaling.
ras	Specifies the registration, admission, and status protocol.
asn	(Optional) Displays the output of the decoded protocol data units (PDU)s.
event	(Optional) Displays the signaling events or turns on both traces.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To see the current debugging command settings, enter the **show debug** command. To stop the debugging output, enter the **no debug** command. To stop all debugging messages from being displayed, enter the **no debug all** command.

Note Enabling the **debug h323** command may slow down traffic on busy networks.

Examples

The following example enables debugging messages at the default level (1) for H.225 signaling:

```
hostname# debug h323 h225
```

Related Commands

Command	Description
inspect h323	Enables H.323 application inspection.
show h225	Displays information for H.225 sessions established across the ASA.
show h245	Displays information for H.245 sessions established across the ASA by endpoints using slow start.
show h323-ras	Displays information for H.323 RAS sessions established across the ASA.
timeout h225 | h323	Configures the idle time after which an H.225 signalling connection or an H.323 control connection will be closed.

debug http

To display detailed information about HTTP traffic, use the **debug http** command in privileged EXEC mode. To disable debugging, use the **no** form of this command.

debug http [*level*]

no debug http [*level*]

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default for the debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **debug http** command displays detailed information about HTTP traffic. The **no debug all** or **undebug all** command turns off all enabled **debug** commands.

Examples

The following example enables the display of detailed information about HTTP traffic:

```
hostname# debug http
```

Related Commands

Commands	Description
http	Specifies hosts that can access the HTTP server internal to the ASA.
http-proxy	Configures an HTTP proxy server.
http redirect	Redirects HTTP traffic to HTTPS.
http server enable	Enables the ASA HTTP server.

debug http-map

To show debugging messages for HTTP application inspection maps, use the **debug http-map** command in privileged EXEC mode. To stop showing debugging messages for HTTP application inspection, use the **no** form of this command.

debug http-map

no debug http-map

Defaults

The default value for the debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To see the current debugging command settings, enter the **show debug** command. To stop the debugging output, enter the **no debug** command. To stop all debugging messages from being displayed, enter the **no debug all** command.

Note Enabling the **debug http-map** command may slow down traffic on busy networks.

Examples

The following example enables debugging messages at the default level (1) for HTTP application inspection:

```
hostname# debug http-map
```

Related Commands

Command	Description
class-map	Defines the traffic class to which to apply security actions.
debug appfw	Displays detailed information about HTTP application inspection.
http-map	Defines an HTTP map for configuring enhanced HTTP inspection.
inspect http	Applies a specific HTTP map to use for application inspection.
policy-map	Associates a class map with specific security actions.

CHAPTER 15

debug icmp through debug ospfv3 Commands

debug icmp

To display detailed information about ICMP inspection, use the **debug icmp** command in privileged EXEC mode. To disable debugging, use the **no** form of this command.

debug icmp trace [*level*]

no debug icmp trace [*level*]

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.
trace	Displays debugging information about ICMP trace activity.

Defaults

All options are enabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **debug icmp** command displays detailed information about ICMP inspection. The **no debug all** or **undebug all** command turns off all enabled debugs.

Examples

The following example enables the display of detailed information about ICMP inspection:

```
hostname# debug icmp
```

Related Commands

Commands	Description
clear configure icmp	Clears the ICMP configuration.
icmp	Configures access rules for ICMP traffic that terminates at a ASA interface.
show conn	Displays the state of connections through the ASA for different protocols and session types.

Commands	Description
show icmp	Displays the ICMP configuration.
timeout icmp	Configures the idle timeout for ICMP.

debug idprom

To enable the display of IDPROM-related debugging information, use the **debug idprom** command in privileged EXEC mode. To disable the display of IDPROM-related debugging information, use the **no** form of this command.

debug idprom

no debug idprom

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
8.6(1)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example enables the display of debugging information for IDPROM-related errors:

```
hostname# debug idprom
```

Related Commands

Command	Description
show debug	Displays the current debugging configuration.

debug igmp

To display IGMP debugging message information, use the **debug igmp** command in privileged EXEC mode. To disable the display of debugging message information, use the **no** form of this command.

debug igmp [**group** *group_id* | **interface** *if_name*]

no debug igmp [**group** *group_id* | **interface** *if_name*]

Syntax Description

group *group_id*	Displays IGMP debugging message information for the specified group.
interface *if_name*	Display IGMP debugging message information for the specified interface.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following is sample output from the **debug igmp** command:

```
hostname# debug igmp

IGMP debugging is on
IGMP: Received v2 Query on outside from 192.168.3.2
IGMP: Send v2 general Query on dmz
IGMP: Received v2 Query on dmz from 192.168.4.1
IGMP: Send v2 general Query on outside
IGMP: Received v2 Query on outside from 192.168.3.1
IGMP: Send v2 general Query on inside
IGMP: Received v2 Query on inside from 192.168.1.1
IGMP: Received v2 Report on inside from 192.168.1.6 for 224.1.1.1
IGMP: Updating EXCLUDE group timer for 224.1.1.1
```

Related Commands

Command	Description
show igmp groups	Displays the multicast groups with receivers that are directly connected to the ASA and that were learned through IGMP.
show igmp interface	Displays multicast information for an interface.

debug ils

To show debugging messages for ILS, use the **debug ils** command in privileged EXEC mode. To stop showing debugging messages for ILS, use the **no** form of this command.

debug ils [*level*]

no debug ils [*level*]

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default value for the debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To see the current **debug** command settings, enter the **show debug** command. To stop the debugging output, enter the **no debug** command. To stop all debugging messages from being displayed, enter the **no debug all** command.

Note Enabling the **debug ils** command may slow down traffic on busy networks.

Examples

The following example enables debugging messages at the default level (1) for ILS application inspection:

```
hostname# debug ils
```

Related Commands

Command	Description
class-map	Defines the traffic class to which to apply security actions.
inspect ils	Enables ILS application inspection.
policy-map	Associates a class map with specific security actions.
service-policy	Applies a policy map to one or more interfaces.

debug imagemgr

To display Image Manager debugging information, use the **debug imagemgr** command in privileged EXEC mode. To disable the display of debugging information, use the **no** form of this command.

debug imagemgr [*level*]

no debug imagemgr [*level*]

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default value for the debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following is sample output from the **debug imagemgr** and the **show debug** commands:

```
hostname# debug imagemgr
debug imagemgr  enabled at level 1
hostname# show debug
debug imagemgr  enabled at level 1
hostname#
```

Related Commands

Command	Description
show debug	Displays the current debugging configuration.

debug inspect tls-proxy

To show debugging messages for TLS proxy inspection, use the **debug inspect tls-proxy** command in privileged EXEC mode. To stop showing debugging messages, use the **no** form of this command.

debug inspect tls-proxy [**all** | **errors** | **events** | **packets**]

no debug inspect tls-proxy [**all** | **errors** | **events** | **packets**]

Syntax Description

all	Specifies all TLS proxy debugging.
errors	Specifies TLS proxy error debugging.
events	Specifies TLS proxy event debugging.
packets	Specifies TLS proxy packet debugging.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debugging messages for TLS proxy:

```
hostname# debug inspect tls-proxy
```

Related Commands

Command	Description
client	Defines a cipher suite and sets the local dynamic certificate issuer or keypair.
ctl-provider	Defines a CTL provider instance and enters provider configuration mode.
show tls-proxy	Shows the TLS proxies.
tls-proxy	Defines a TLS proxy instance and sets the maximum sessions.

debug ip eigrp

To display debugging message information EIGRP protocol packets, use the **debug ip eigrp** command in privileged EXEC mode. To disable the debugging message information display, use the **no** form of this command.

debug ip eigrp [*as-number*] [*ip-addr mask* | **neighbor** *nbr-addr* | **notifications** | **summary**]

no debug ip eigrp [*as-number*] [*ip-addr mask* | **neighbor** *nbr-addr* | **notifications** | **summary**]

Syntax Description

as-number	(Optional) Specifies the autonomous system number of the EIGRP process for which you are viewing the event log. Because the ASA only supports one EIGRP routing process, you do not need to specify the autonomous system number.
ip-addr mask	(Optional) Limits debugging message output to messages that fall within the range defined by the IP address and network mask.
neighbor *nbr-addr*	(Optional) Limits debugging message output to the specified neighbor.
notifications	(Optional) Limits debugging message output to EIGRP protocol events and notifications.
summary	(Optional) Limits debugging message output to summary route processing.
user-interface	(Optional) Limits debugging message output to user events.

Defaults

If no keywords or arguments are specified, only debugging messages from the IPv4 ASDM appear.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

This command helps you analyze the packets that are sent and received on an interface.

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco TAC. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following is sample output from the **debug ip eigrp** command:

```
hostname# debug ip eigrp

IP-EIGRP Route Events debugging is on

EIGRP-IPv4(Default-IP-Routing-Table:1): Processing incoming UPDATE packet
EIGRP-IPv4(Default-IP-Routing-Table:1): Ext 192.168.3.0 255.255.255.0 M 386560 - 256000
130560 SM 360960 - 256000 104960
EIGRP-IPv4(Default-IP-Routing-Table:1): Ext 192.168.0.0 255.255.255.0 M 386560 - 256000
130560 SM 360960 - 256000 104960
EIGRP-IPv4(Default-IP-Routing-Table:1): Ext 192.168.3.0 255.255.255.0 M 386560 - 256000
130560 SM 360960 - 256000 104960
EIGRP-IPv4(Default-IP-Routing-Table:1): 172.69.43.0 255.255.255.0, - do advertise out
Ethernet0/1
EIGRP-IPv4(Default-IP-Routing-Table:1): Ext 172.69.43.0 255.255.255.0 metric 371200 -
256000 115200
EIGRP-IPv4(Default-IP-Routing-Table:1): 192.135.246.0 255.255.255.0, - do advertise out
Ethernet0/1
EIGRP-IPv4(Default-IP-Routing-Table:1): Ext 192.135.246.0 255.255.255.0 metric 46310656 -
45714176 596480
EIGRP-IPv4(Default-IP-Routing-Table:1): 172.69.40.0 255.255.255.0, - do advertise out
Ethernet0/1
EIGRP-IPv4(Default-IP-Routing-Table:1): Ext 172.69.40.0 255.255.255.0 metric 2272256 -
1657856 614400
EIGRP-IPv4(Default-IP-Routing-Table:1): 192.135.245.0 255.255.255.0, - do advertise out
Ethernet0/1
EIGRP-IPv4(Default-IP-Routing-Table:1): Ext 192.135.245.0 255.255.255.0 metric 40622080 -
40000000 622080
EIGRP-IPv4(Default-IP-Routing-Table:1): 192.135.244.0 255.255.255.0, - do advertise out
Ethernet0/1
```

Table 15-1describes the significant fields shown in the display.

Table 15-1 debug ip eigrp Field Descriptions

Field	Description
IP-EIGRP:	Indicates IP EIGRP messages.
Ext	Indicates that the following address is an external route rather than an internal route, which would be labeled as Int.
M	Displays the computed metric, which includes the value in the SM field and the cost between this router and the neighbor. The first number is the composite metric. The next two numbers are the inverse bandwidth and the delay, respectively.
SM	Displays the metric as reported by the neighbor.

Related Commands

Command	Description
debug eigrp packets	Displays debugging information for EIGRP packets.

debug ipsec-over-tcp

To display IPsec-over-TCP debugging information, use the **debug ipsec-over-tcp** command in privileged EXEC mode. To disable the display of debugging information, use the **no** form of this command.

debug ipsec-over-tcp [*level*]

no debug ipsec-over-tcp

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default value for the debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example enables IPsec-over-TCP debugging messages. The **show debug** command reveals that IPsec-over-TCP debugging messages are enabled.

```
hostname# debug ipsec-over-tcp
debug ipsec-over-tcp  enabled at level 1
hostname# show debug
debug ipsec-over-tcp  enabled at level 1
hostname#
```

Related Commands

Command	Description
show debug	Displays the current debugging configuration.

debug ipv6

To display IPv6 debugging messages, use the **debug ipv6** command in privileged EXEC mode. To stop the display of debugging messages, use the **no** form of this command.

debug ipv6 {**icmp** | **interface** | **mld** | **nd** | **packet** | **routing**}

no debug ipv6 {**icmp** | **interface** | **nd** | **packet** | **routing**}

Syntax Description

icmp	Displays debugging messages for IPv6 ICMP transactions, excluding ICMPv6 neighbor discovery transactions.
interface	Displays debugging information for IPv6 interfaces.
mld	Displays debugging messages for Multicast Listener Discovery (MLD).
nd	Displays debugging messages for ICMPv6 neighbor discovery transactions.
packet	Displays debugging messages for IPv6 packets.
routing	Displays debugging messages for IPv6 routing table updates and route cache updates.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco TAC. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following is sample output for the **debug ipv6 icmp** command:

```
hostname# debug ipv6 icmp
13:28:40:ICMPv6:Received ICMPv6 packet from 2000:0:0:3::2, type 136
13:28:45:ICMPv6:Received ICMPv6 packet from FE80::203:A0FF:FED6:1400, type 135
13:28:50:ICMPv6:Received ICMPv6 packet from FE80::203:A0FF:FED6:1400, type 136
```

```
13:28:55:ICMPv6:Received ICMPv6 packet from FE80::203:A0FF:FED6:1400, type 135
```

Related Commands

Command	Description
ipv6 icmp	Defines access rules for ICMP messages that terminate on an ASA interface.
ipv6 address	Configures an interface with an IPv6 address or addresses.
ipv6 nd dad attempts	Defines the number of neighbor discovery attempts performed during duplicate address detection.
ipv6 route	Defines a static entry in the IPv6 routing table.

debug ipv6 dhcp

To enable and disable generic IPv6 DHCP debugging messages, use the **debug ipv6 dhcp** command in privileged EXEC mode. To stop the display of debugging messages, use the **no** form of this command.

debug ipv6 dhcp

no debug ipv6 dhcp

Syntax Description

This command has no arguments or keywords.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco TAC. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following is sample output for the **debug ipv6 dhcp** command:

```
hostname# debug ipv6 dhcp
IPv6 DHCP: Received RELAY-REPLY from fe80::2a0:c9ff:fe5d:41ed on cnr

IPv6 DHCP: detailed packet contents
    src fe80::2a0:c9ff:fe5d:41ed (cnr)
    dst fe80::2e0:b6ff:fe00:3306
    type RELAY-REPLY(13), hop 0
    link 2002::1
    peer fe80::204:23ff:febb:b094
    option INTERFACE-ID(18), len 4
    0x00000003
    option RELAY-MSG(9), len 58
    type REPLY(7), xid 3718228
    option CLIENTID(1), len 14
```

```
  000100010f9a59d1000423bbb094
option SERVERID(2), len 14
  0001000147f28f15000cf1fcecac
option STATUS-CODE(13), len 14
  status code SUCCESS(0)
  status message: All on link!
```

Related Commands

Command	Description
debug ipv6 dhcprelay	Enables and disables IPv6 DHCP relay agent debugging.
show ipv6 dhcprelay binding	Displays the relay binding entries created by the relay agent.

debug ipv6 dhcprelay

To enable and disable IPv6 DHCP relay agent debugging messages, use the **debug ipv6 dhcprelay** command in privileged EXEC mode. To stop the display of debugging messages, use the **no** form of this command.

debug ipv6 dhcprelay

no debug ipv6 dhcprelay

Syntax Description

This command has no arguments or keywords.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco TAC. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following is sample output for the **debug ipv6 dhcprelay** command:

```
hostname# debug ipv6 dhcprelay
IPv6 DHCP_RELAY: Relaying CONFIRM from fe80::204:23ff:febb:b094 on client
IPv6 DHCP_RELAY: Creating relay binding for fe80::204:23ff:febb:b094 at interface client
IPv6 DHCP_RELAY:   to fe80::2a0:c9ff:fe5d:41ed using cnr
IPv6 DHCP_RELAY:   to 2005::11 via 2005::11 using router
IPv6 DHCP_RELAY:   to fe80::204:23ff:febb:b094 using server
IPv6 DHCP_RELAY: Relaying RELAY-REPLY from fe80::2a0:c9ff:fe5d:41ed on cnr
IPv6 DHCP_RELAY:   relayed msg: REPLY
IPv6 DHCP_RELAY:   to fe80::204:23ff:febb:b094
IPv6 DHCP_RELAY: Deleting binding for fe80::204:23ff:febb:b094 at interface client
```

Related Commands

Command	Description
debug ipv6 dhcp	Enables and disables generic IPv6 DHCP debugging messages.
show ipv6 dhcprelay binding	Displays the relay binding entries created by the relay agent.

debug iua-proxy

To display IUA proxy debugging information, use the **debug iua-proxy** command in privileged EXEC mode. To disable the display of debugging information, use the **no** form of this command.

debug iua-proxy [*level*]

no debug iua-proxy

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default value for the debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example enables IUA-proxy debugging messages. The **show debug** command indicates that IUA-proxy debugging messages are enabled.

```
hostname# debug iua-proxy
debug iua-proxy  enabled at level 1
hostname# show debug
debug iua-proxy  enabled at level 1
hostname#
```

Related Commands

Command	Description
show debug	Displays the current debugging configuration.

debug kerberos

To display Kerberos authentication debugging information, use the **debug kerberos** command in privileged EXEC mode. To disable the display of debugging information, use the **no** form of this command.

debug kerberos [*level*]

no debug kerberos

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default value for the debugging lvel is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example enables Kerberos debugging messages. The **show debug** command reveals that Kerberos debugging messages are enabled.

```
hostname# debug kerberos
debug kerberos enabled at level 1
hostname# show debug
debug kerberos enabled at level 1
hostname#
```

Related Commands

Command	Description
show debug	Displays the current debugging configuration.

debug l2tp

To display L2TP debugging information, use the **debug l2tp** command in privileged EXEC mode. To disable the display of debugging information, use the **no** form of this command.

debug l2tp {**data** | **error** | **event** | **packet**} *level*

no debug l2tp {**data** | **error** | **event** | **packet**} *level*

Syntax Description

data	Displays data packet trace information.
error	Displays error events.
event	Displays L2TP connection events.
level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.
packet	Displays packet trace information.

Defaults

The default value for the debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example enables L2TP debugging messages for connection events. The **show debug** command indicates that L2TP debugging messages are enabled.

```
hostname# debug l2tp event 1
hostname# show debug
debug l2tp event enabled at level 1
hostname#
```

Related Commands

Command	Description
show debug	Displays the current debugging configuration.

debug lacp

To display EtherChannel LACP debugging information, use the **debug lacp** command in privileged EXEC mode. To disable the display of debugging information, use the **no** form of this command.

debug lacp [**all** | **event** | **fsm** | **misc** | **packet** | **periodic**]

no debug lacp [**all** | **event** | **fsm** | **misc** | **packet** | **periodic**]

Syntax Description

all	(Optional) Displays all LACP information.
event	(Optional) Displays LACP events.
fsm	(Optional) Displays LACP finite state machine eventd.
misc	(Optional) Displays LACP miscellaneous events.
packet	(Optional) Displays LACP packet activity.
periodic	(Optional) Displays periodic events.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
8.4(1)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example enables LACP debugging messages for events. The **show debug** command indicates that LACP debugging messages are enabled.

```
hostname# debug lacp event
hostname# show debug
debug lacp event enabled
hostname#
```

Related Commands

Command	Description
show debug	Displays the current debugging configuration.

debug lacp cluster

To display cluster Link Aggregation Control Protocol (cLACP) debug information, use the **debug lacp cluster** command in privileged EXEC mode. To disable the display of debug information, use the **no** form of this command.

debug lacp cluster [**all** | **ccp** | **misc** | **protocol**] [*level*]

no debug lacp cluster [**all** | **ccp** | **misc** | **protocol**]

Syntax Description

level	(Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.
ccp	(Optional) Displays debug messages for the cluster control process.
all	(Optional) Displays messages for all debug types.
misc	(Optional) Displays miscellaneous clustering debug messages.
protocol	(Optional) Displays debug messages for the protocol.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example enables debug messages for all types:

```
hostname# debug lacp cluster all
```

Related Commands

Command	Description
debug cluster	Enables debug messages for clustering.

debug ldap

To display LDAP debugging information, use the **debug ldap** command in privileged EXEC mode. To disable the display of debugging information, use the **no** form of this command.

debug ldap [*level*]

no debug ldap

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default value for the debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example enables LDAP debugging messages. The **show debug** command indicates that LDAP debugging messages are enabled.

```
hostname# debug ldap
debug ldap enabled at level 1
hostname# show debug
debug ldap enabled at level 1
hostname#
```

Related Commands

Command	Description
show debug	Displays the current debugging configuration.

debug license

To show debugging messages for licenses, use the **debug license** command in privileged EXEC mode. To stop showing debugging messages for licenses, use the **no** form of this command.

debug license [*level*]

[no] debug license [*level*]

Syntax Description

level	Indicates the privilege level assigned to the specified user.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.3(1)	This command was introduced.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debugging for licenses:

```
hostname# debug lioense 255
debug license enabled at level 255
```

Related Commands

Command	Description
license server-enable	Identifies a unit as a shared licensing server.
show activation-key	Shows the current licenses installed.
show debug	Shows all enabled debuggers.

debug mac-address-table

To show debugging messages for the MAC address table, use the **debug mac-address-table** command in privileged EXEC mode. To stop showing debugging messages for the MAC address table, use the **no** form of this command.

debug mac-address-table [*level*]

no debug mac-address-table [*level*]

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	—	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debugging messages for the MAC address table:

```
hostname# debug mac-address-table
```

Related Commands

Command	Description
mac-address-table aging-time	Sets the timeout for dynamic MAC address entries.
mac-address-table static	Adds static MAC address entries to the MAC address table.
mac-learn	Disables MAC address learning.

Command	Description
show debug	Shows all enabled debuggers.
show mac-address-table	Shows MAC address table entries.

debug menu

To display detailed debugging information for specific features, use the **debug menu** command in privileged EXEC mode.

debug menu [**aaa | ak47 | coredump | crashinfo | ctm | cts | dap | email | fw | ike-common | ikev1 | ikev2 | ipaddrutl | ipsec-over-tcp | ipv6 | license | memory | nac | npshim | pki | ppp | qos | quota | regex | sessmgr | splitdns | ssl | syslog | vpnfo | vpnlib | webvpn**]

Syntax Description

aaa	(Optional) Specifies debugging information for the AAA feature.
ak47	(Optional) Specifies debugging information for the Application Kernel layer 4 to 7 framework feature.
coredump	(Optional) Specifies debugging information for the coredump feature.
crashinfo	(Optional) Specifies debugging information for the crashinfo feature.
ctm	(Optional) Specifies debugging information for the CTM feature.
cts	(Optional) Specifies debugging information for the CTS feature.
dap	(Optional) Specifies debugging information for the DAP feature.
email	(Optional) Specifies debugging information for the e-mail feature.
fw	(Optional) Specifies debugging information for the firewall feature.
ike-common	(Optional) Specifies debugging information for the IKE feature.
ikev1	(Optional) Specifies debugging information for the IKEv1 feature.
ikev2	(Optional) Specifies debugging information for the IKEv2 feature.
ipaddrutl	(Optional) Specifies debugging information for the IP address utilityfeature.
ipsec-over-tcp	(Optional) Specifies debugging information for the IPsec over TCP feature.
ipv6	(Optional) Specifies debugging information for the IPv6 feature.
license	(Optional) Specifies debugging information for the licensing feature.
memory	(Optional) Specifies debugging information for the memory feature.
nac	(Optional) Specifies debugging information for the NAC feature.
npshim	(Optional) Specifies debugging information for the NPSHIM feature.
pki	(Optional) Specifies debugging information for the PKI feature.
ppp	(Optional) Specifies debugging information for the PPP feature.
qos	(Optional) Specifies debugging information for the QoS feature.
quota	(Optional) Specifies debugging information for the quota feature.
regex	(Optional) Specifies debugging information for the registered expression feature.
sessmgr	(Optional) Specifies debugging information for the session manager feature.
splitdns	(Optional) Specifies debugging information for the split DNS feature.
ssl	(Optional) Specifies debugging information for the SSL feature.
syslog	(Optional) Specifies debugging information for the syslog feature.
vpnfo	(Optional) Specifies debugging information for the VPN failover feature.
vpnlib	(Optional) Specifies debugging information for the VPN library feature.
webvpn	(Optional) Specifies debugging information for the WebVPN feature.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.
9.1(4)	The **ak47** option was added.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco TAC. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Caution The **debug menu** command should be used only under the supervision of Cisco TAC.

Related Commands

Command	Description
show debug	Displays the current debugging configuration.

debug mfib

To display MFIB debugging information, use the **debug mfib** command in privileged EXEC mode. To disable the display of debugging information, use the **no** form of this command.

debug mfib {**db** | **init** | **mrib** | **pak** | **ps** | **signal**} [*group*] [**cluster**]

no debug mfib {**db** | **init** | **mrib** | **pak** | **ps** | **signal**} [*group*] [**cluster**]

Syntax Description

cluster	(Optional) Displays debugging information for the MFIB epoch number and the current timer value for the cluster.
group	(Optional) Displays the IP address of the multicast group.
init	(Optional) Displays system initialization activity.
mrib	(Optional) Displays debugging information for communication with MFIB.
pak	(Optional) Displays debugging information for packet forwarding operations.
ps	(Optional) Displays debugging information for process switching operations.
signal	(Optional) Displays debugging information for MFIB signaling to routing protocols.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	The **cluster** keyword was added.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following is sample output from the **debug mfib db** command:

```
hostname# debug mfib db
MFIB IPv4 db debugging enabled
```

The following is sample output from the **debug mfib cluster** command:

```
hostname# debug mfib cluster

MFIB CLUSTER: MFIB CLUSTER: mfib_cluster_send_update_msg sync DB entry add:
s=172.23.57.98, g=229.111.112.12, mask_len=32, epoch=1, attr=0x20

MFIB CLUSTER: MFIB CLUSTER: mfib_cluster_send_update_msg sync DB entry add:
s=172.23.57.98, g=229.111.112.12, mask_len=32, epoch=1, attr=0x20

MFIB CLUSTER: MFIB CLUSTER: mfib_cluster_send_update_msg sync DB entry add:
s=172.23.57.98, g=229.111.112.12, mask_len=32, epoch=1, attr=0x20

MFIB CLUSTER: MFIB CLUSTER: mfib_cluster_send_update_msg sync DB entry add:
s=172.23.57.98, g=229.111.112.12, mask_len=32, epoch=1, attr=0x20
```

Related Commands

Command	Description
show mfib	Displays MFIB forwarding entries and interfaces.

debug mgcp

To display detailed information about MGCP application inspection, use the **debug mgcp** command in privileged EXEC mode. To disable debugging, use the **no** form of this command.

debug mgcp {**messages** | **parser** | **sessions**}

no debug mgcp {**messages** | **parser** | **sessions**}

Syntax Description

messages	Displays debugging information about MGCP messages.
parser	Displays debugging information for parsing MGCP messages.
sessions	Displays debugging information about MGCP sessions.

Defaults

All options are enabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **debug mgcp** command displays detailed information about MGCP inspection. The **no debug all** or **undebug all** command turns off all enabled debugging.

Examples

The following example enables the display of detailed information about MGCP application inspection:

```
hostname# debug mgcp
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
inspect mgcp	Enables MGCP application inspection.
mgcp-map	Defines an MGCP map and enables MGCP map configuration mode.
show mgcp	Displays information about MGCP sessions established through the ASA.
show conn	Displays the connection state for different connection types.

debug mmp

To display inspect MMP events, use the **debug mmp** command in privileged EXEC mode. To stop the display of inspect MMP events, use the **no** form of this command.

debug mmp

no debug mmp

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.0(4)	The command was introduced.

Examples

The following example shows how to display inspect MMP events:

```
hostname# debug mmp
ciscoasa5520-tfw-cuma/admin(config-pmap)# MMP:: received 28 bytes from outside:1
72.23.62.204/2494 to inside:10.0.0.42/5443
MMP:: version OLWP-2.0
MMP status: 0
MMP:: forward 28/28 bytes from outside:172.23.62.204/2494 to inside:10.0.0.42/5443
MMP:: received 85 bytes from inside:10.0.0.42/5443 to outside:172.23.62.204/2494
MMP:: version OLWP-2.0
MMP:: session-id: 41A3D410-8B10-4DEB-B15C-B2B4B0D22055
MMP status: 201
MMP:: forward 85/85 bytes from inside:10.0.0.42/5443 to outside:172.23.62.204/2494
MMP:: received 265 bytes from outside:172.23.62.204/2494 to inside:10.0.0.42/5443
MMP:: content-length: 196
MMP:: content-type: text/oml21+wbxml
MMP:: processing entity body 200/196
MMP:: forward 265/265 bytes from outside:172.23.62.204/2494 to inside:10.0.0.42/5443
MMP:: received 267 bytes from inside:10.0.0.42/5443 to outside:172.23.62.204/2494
MMP:: content-length: 198
MMP:: content-type: text/oml21+wbxml
MMP:: processing entity body 202/198
MMP:: forward 267/267 bytes from inside:10.0.0.42/5443 to outside:172.23.62.204/2494
MMP:: received 135 bytes from outside:172.23.62.204/2494 to inside:10.0.0.42/5443
MMP:: content-length: 67
```

```
MMP:: content-type: text/oml21+wbxml
MMP:: processing entity body 71/67
MMP:: forward 135/135 bytes from outside:172.23.62.204/2494 to inside:10.0.0.42/5443
MMP:: received 100 bytes from inside:10.0.0.42/5443 to outside:172.23.62.204/2442
MMP:: content-length: 32
MMP:: content-type: text/oml21+wbxml
MMP:: processing entity body 36/32
MMP:: forward 100/100 bytes from inside:10.0.0.42/5443 to outside:172.23.62.204/2442
MMP:: received 130 bytes from inside:10.0.0.42/5443 to outside:172.23.62.204/2494
MMP:: content-length: 62
MMP:: content-type: text/oml21+wbxml
MMP:: processing entity body 66/62
MMP:: forward 130/130 bytes from inside:10.0.0.42/5443 to outside:172.23.62.204/2494
MMP:: received 220 bytes from outside:172.23.62.204/2494 to inside:10.0.0.42/5443
MMP:: content-length: 151
MMP:: content-type: text/oml21+wbxml
MMP:: processing entity body 155/151
MMP:: forward 220/220 bytes from outside:172.23.62.204/2494 to inside:10.0.0.42/5443
MMP:: received 130 bytes from inside:10.0.0.42/5443 to outside:172.23.62.204/2494
MMP:: content-length: 62
MMP:: content-type: text/oml21+wbxml
MMP:: processing entity body 66/62
MMP:: forward 130/130 bytes from inside:10.0.0.42/5443 to outside:172.23.62.204/2494
```

Related Commands

Command	Description
inspect mmp	Configures the MMP inspection engine.
show debug mmp	Displays the current debugging settings for the MMP inspection module.
show mmp	Displays information about existing MMP sessions.

debug module-boot

To show debugging messages about the SSM booting process, use the **debug module-boot** command in privileged EXEC mode. To disable the display of debugging messages for the SSM booting process, use the **no** form of this command.

debug module-boot [*level*]

no debug module-boot [*level*]

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debugging messages for the SSM booting process:

```
hostname# debug module-boot
```

Related Commands

Command	Description
hw-module module recover	Recovers an intelligent SSM by loading a recovery image from a TFTP server.
hw-module module reset	Shuts down an SSM and performs a hardware reset.
hw-module module reload	Reloads the intelligent SSM software.

Command	Description
hw-module module shutdown	Shuts down the SSM software in preparation for being powered off without losing configuration data.
show module	Shows SSM information.

debug mrib

To display MRIB debugging information, use the **debug mrib** command in privileged EXEC mode. To disable the display of debugging information, use the **no** form of this command.

debug mrib {**client** | **io** | **route** [*group*] | **table**}

no debug mrib {**client** | **io** | **route** [*group*] | **table**}

Syntax Description

client	Enables debugging for MRIB client management activity.
io	Enables debugging of MRIB I/O events.
route	Enables debugging of MRIB routing entry activity.
group	Enables debugging of MRIB routing entry activity for the specified group.
table	Enables debugging of MRIB table management activity.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following is sample output from the **debug mrib** io command:

```
hostname# debug mrib io
IPv4 MRIB io debugging is on
```

Related Commands

Command	Description
show mrib client	Displays information about the MRIB client connections.
show mrib route	Displays MRIB table entries.

debug nac

To enable logging of NAC Framework events, use the **debug nac** command in privileged EXEC mode. To disable the logging of NAC debugging messages, use the **no** form of this command.

debug nac {**all** | **auth** | **errors** | **events**}

no debug nac {**all** | **auth** | **errors** | **events**}

Syntax Description

all	Enables logging of debugging messages about all NAC information.
auth	Enables logging of debugging messages about NAC authentication requests and responses.
errors	Enables logging of NAC session errors.
events	Enables logging of NAC session events.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

When you use this command, the ASA logs the following types of NAC events: initializations, exception list matches, ACS transactions, clientless authentications, default ACL applications, and revalidations.

The high priority assigned to debugging output can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example enables the logging of all NAC session events:

```
hostname# debug nac events
hostname#
```

The following example enables the logging of all NAC debugging messages:

```
hostname# debug nac all
```

```
hostname#
```

The following example disables the logging of all NAC debugging messages:

```
hostname# no debug nac
hostname#
```

Related Commands

Command	Description
debug eap	Enables logging of Extensible Authentication Protocol events to debug NAC Framework messaging.
debug eou	Enables logging of EAP over UDP events to debug NAC Framework messaging.
show vpn-session_summary.db	Displays the number of IPsec, WebVPN, and NAC sessions.
show vpn-session.db	Displays information about VPN sessions, including NAC results.

debug ntdomain

To display NT domain authentication debugging information, use the **debug ntdomain** command in privileged EXEC mode. To disable the display of NT domain debugging information, use the **no** form of this command.

debug ntdomain [*level*]

no debug ntdomain

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default value for the debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example enables NT domain debugging messages. The **show debug** command indicates that NT domain debugging messages are enabled.

```
hostname# debug ntdomain
debug ntdomain enabled at level 1
hostname# show debug
debug ntdomain enabled at level 1
hostname#
```

Related Commands

Command	Description
show debug	Displays the current debugging configuration.

debug ntp

To show debugging messages for NTP, use the **debug ntp** command in privileged EXEC mode. To stop showing debugging messages for NTP, use the **no** form of this command.

debug ntp {**adjust** | **authentication** | **events** | **loopfilter** | **packets** | **params** | **select** | **sync** | **validity**}

no debug ntp {**adjust** | **authentication** | **events** | **loopfilter** | **packets** | **params** | **select** | **sync** | **validity**}

Syntax Description

adjust	Shows messages about NTP clock adjustments.
authentication	Shows messages about NTP authentication.
events	Shows messages about NTP events.
loopfilter	Shows messages about NTP loop filter.
packets	Shows messages about NTP packets.
params	Shows messages about NTP clock parameters.
select	Shows messages about NTP clock selection.
sync	Shows messages about NTP clock synchronization.
validity	Shows messages about NTP peer clock validity.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debugging messages for NTP:

```
hostname# debug ntp events
```

Related Commands

Command	Description
ntp authenticate	Enables NTP authentication.
ntp server	Identifies an NTP server.
show debug	Shows all enabled debuggers.
show ntp associations	Shows the NTP servers with which the ASA is associated.
show ntp status	Shows the status of the NTP association.

debug ospf

To display debugging information about the OSPF routing processes, use the **debug ospf** command in privileged EXEC mode. To disable the display of debugging information, use the **no** form of this command.

debug ospf [**adj** | **database-timer** | **events** | **flood** | **hello** | **ipsec** | **lsa** | **lsa-generation** | **lsa-maxage** | **lsdb** | **packet** | **rate-limit** | **retransmission** | **spf** | **tree**] [**external**]

no debug ospf [**adj** | **database-timer** | **events** | **flood** | **hello** | **ipsec** | **lsa** | **lsa-generation** | **lsa-maxage** | **lsdb** | **packet** | **rate-limit** | **retransmission** | **spf** | **tree**] [**external**]

Syntax Description

adj	(Optional) Enables the debugging of OSPF adjacency events.
database-timer	(Optional) Enables the debugging of OSPF database timer events.
events	(Optional) Enables the debugging of OSPF events.
external	(Optional) Limits SPF debugging to external events.
flood	(Optional) Enables the debugging of OSPF flooding events.
hello	(Optional) Enables the debugging of OSPF hello events.
ipsec	(Optional) Enables the debugging of OSPF IPsec events.
lsa	(Optional) Enables SPF debugging of LSA events.
lsa-generation	(Optional) Enables the debugging of OSPF summary LSA generation events.
lsa-maxage	(Optional) Enables the debugging of OSPF summary LSA maximum age events.
lsdb	(Optional) Enables the debugging of OSPF summary LSA database events.
packet	(Optional) Enables the debugging of received OSPF packets.
rate-limit	(Optional) Enables the debugging of received OSPF rate limits.
retransmission	(Optional) Enables the debugging of OSPF retransmission events.
spf	(Optional) Enables the debugging of OSPF shortest path first calculations.
tree	(Optional) Enables the debugging of OSPF database events.

Defaults

Displays all OSPF debugging information if no keyword is provided.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	The following keywords have been added: **hello, ipsec, lsa, lsa-maxage, lsdb,** and **rate-limit.**

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following is sample output from the **debug ospf events** command:

```
hostname# debug ospf events
ospf event debugging is on

OSPF:hello with invalid timers on interface Ethernet0
hello interval received 10 configured 10
net mask received 255.255.255.0 configured 255.255.255.0
dead interval received 40 configured 30
```

Related Commands

Command	Description
show ospf	Displays general information about the OSPF routing process.

debug ospfv3

To display debugging information about the OSPFv3 routing processes, use the **debug ospfv3** command in privileged EXEC mode. To disable the display of debugging information, use the **no** form of this command.

debug ospfv3 [**adj** | **database-timer** | **events** | **flood** | **hello** | **lsa-generation** | **packet** | **retransmission** | **spf**]

no debug ospfv3 [**adj** | **database-timer** | **events** | **flood** | **hello** | **lsa-generation** | **packet** | **retransmission** | **spf**]

Syntax Description

adj	(Optional) Enables the debugging of OSPFv3 adjacency events.
database-timer	(Optional) Enables the debugging of OSPFv3 timer events.
events	(Optional) Enables the debugging of OSPFv3 events.
flood	(Optional) Enables the debugging of OSPFv3 flooding.
hello	(Optional) Enables the debugging of OSPFv3 hello events.
lsa-generation	(Optional) Enables the debugging of OSPFv3 summary LSA generation.
packet	(Optional) Enables the debugging of received OSPv3F packets.
retransmission	(Optional) Enables the debugging of OSPFv3 retransmission events.
spf	(Optional) Enables the debugging of OSPFv3 SPF calculations.

Defaults

Displays all OSPFv3 debugging information if no keyword is provided.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following is sample output from the **debug ospf events** command:

```
hostname# debug ospfv3 events
ospfv3 event debugging is on

OSPFv3:hello with invalid timers on interface Ethernet0
hello interval received 10 configured 10
net mask received 255.255.255.0 configured 255.255.255.0
dead interval received 40 configured 30
```

Related Commands

Command	Description
show ipv6 ospf	Displays general information about the OSPFv3 routing process.

CHAPTER 16

debug parser cache through debug xml Commands

debug parser cache

To display CLI parser debugging information, use the **debug parser cache** command in privileged EXEC mode. To disable the display of CLI parser debugging information, use the **no** form of this command.

debug parser cache [*level*]

no debug parser cache

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default value for the debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example enables CLI parser debugging messages. The **show debug** command indicates the current debugging configuration. The CLI parser debugging messages appear before and after the output of the **show debug** command.

```
hostname# debug parser cache
debug parser cache enabled at level 1
hostname# show debug
parser cache: try to match 'show debug' in exec mode
debug parser cache enabled at level 1
parser cache: hit at index 8
hostname#
```

Related Commands

Command	Description
show debug	Displays the current debugging configuration.

debug phone-proxy

To show debugging messages for the Phone Proxy instance, use the **debug phone-proxy** command in privileged EXEC mode. To stop displaying Phone Proxy messages, use the **no** form of this command.

debug phone-proxy [**media** | **signaling** | **tftp** [**errors** | **events**]]

no debug phone-proxy [**media** | **signaling** | **tftp** [**errors** | **events**]]

Syntax Description

errors	(Optional) Show debugging messages of phone-proxy errors.
events	(Optional) Show debugging messages of phone-proxy events.
media	(Optional) Show debugging messages of media sessions for SIP and Skinny inspections.
signaling	(Optional) Show debugging messages of signaling sessions for SIP and Skinny inspections.
tftp	(Optional) Show debugging messages of TFTP inspection, including creation of the CTL file and configuration file parsing.

Defaults

If no options are specified with the **debug phone-proxy** command, all phone-proxy debugging messages are displayed.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
8.0(4)	The command was introduced.

Usage Guidelines

The **debug phone-proxy** command displays detailed information about Phone Proxy activity. The **no debug phone-proxy** commands turn off all enabled debugging.

Examples

The following example shows successful TFTP transactions for the configuration file request for the Phone Proxy:

```
hostname(config)# debug phone-proxy tftp
PP: 98.208.49.30/1028 requesting SEP00070E364804.cnf.xml.sgn
PP: opened 0x33952aa2
PP: Received data from 192.168.200.101 to outside:98.208.49.30/1028
        Received Block 1
```

```
PP: Acked Block #1 from 98.208.49.30/1028 to 192.168.200.101/39514
           .... [snip].....
PP: Received data from 192.168.200.101 to outside:98.208.49.30/1028
       Received Block 10
PP: Acked Block #10 from 98.208.49.30/1028 to 192.168.200.101/39514
PP: Installed application redirect rule from 98.208.49.30 to 192.168.200.101 using
redirect port 2000 and secure port 2443
PP: Modifying to TLS as the transport layer protocol.
PP: Modifying to encrypted mode.
PP: Data Block 1 forwarded from 192.168.200.101/39514 to 98.208.49.30/1028
PP: Received ACK Block 1 from outside:98.208.49.30/1028 to inside:192.168.200.101
           ..... [snip] ....
PP: Data Block 11 forwarded to 98.208.49.30/1028
PP: Received ACK Block 11 from outside:98.208.49.30/1028 to inside:192.168.200.101
PP: TFTP session complete, all data sent
```

Related Commands

Command	Description
phone-proxy	Configures the Phone Proxy instance.
show running-config phone-proxy	Displays Phone Proxy-specific information.

debug pim

To display PIM debugging information, use the **debug pim** command in privileged EXEC mode. To disable the display of debugging information, use the **no** form of this command.

debug pim [**df-election** [**interface** *if_name* | **rp** *rp*] | **group** *group* | **interface** *if_name* | **neighbor**]

no debug pim [**df-election** [**interface** *if_name* | **rp** *rp*] | **group** *group* | **interface** *if_name* | **neighbor**]

Syntax Description

df-election	(Optional) Displays debugging messages for PIM bidirectional DF-election message processing.
group *group*	(Optional) Displays debugging information for the specified group. The value for *group* can be one of the following: • Name of the multicast group, as defined in the DNS hosts table or with the domain **ipv4 host** command. • IP address of the multicast group, which is a multicast IP address in four-part, dotted-decimal notation.
interface *if_name*	(Optional) When used with the **df-election** keyword, limits the DF election debugging display to information for the specified interface. When used without the **df-election** keyword, displays PIM error messages for the specified interface. **Note** The **debug pim interface** command does not display PIM protocol activity messages; it only displays error messages. To see debugging information for PIM protocol activity, use the **debug pim** command without the **interface** keyword. You can use the **group** keyword to limit the display to the specified multicast group.
neighbor	(Optional) Displays only the sent and received PIM hello messages.
rp *rp*	(Optional) Can be either one of the following: • Name of the RP, as defined in the DNS hosts table or with the domain **ipv4 host** command. • IP address of the RP, which is a multicast IP address in four-part, dotted-decimal notation.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command logs PIM packets received and transmitted and PIM-related events.

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following is sample output from the **debug pim** command:

```
hostname# debug pim
PIM: Received Join/Prune on Ethernet1 from 172.24.37.33
PIM: Received Join/Prune on Ethernet1 from 172.24.37.33
PIM: Received Join/Prune on Tunnel0 from 10.3.84.1
PIM: Received Join/Prune on Ethernet1 from 172.24.37.33
PIM: Received Join/Prune on Ethernet1 from 172.24.37.33
PIM: Received RP-Reachable on Ethernet1 from 172.16.20.31
PIM: Update RP expiration timer for 224.2.0.1
PIM: Forward RP-reachability packet for 224.2.0.1 on Tunnel0
PIM: Received Join/Prune on Ethernet1 from 172.24.37.33
PIM: Prune-list (10.221.196.51/32, 224.2.0.1)
PIM: Set join delay timer to 2 seconds for (10.221.0.0/16, 224.2.0.1) on Ethernet1
PIM: Received Join/Prune on Ethernet1 from 172.24.37.6
PIM: Received Join/Prune on Ethernet1 from 172.24.37.33
PIM: Received Join/Prune on Tunnel0 from 10.3.84.1
PIM: Join-list: (*, 224.2.0.1) RP 172.16.20.31
PIM: Add Tunnel0 to (*, 224.2.0.1), Forward state
PIM: Join-list: (10.0.0.0/8, 224.2.0.1)
PIM: Add Tunnel0 to (10.0.0.0/8, 224.2.0.1), Forward state
PIM: Join-list: (10.4.0.0/16, 224.2.0.1)
PIM: Prune-list (172.24.84.16/28, 224.2.0.1) RP-bit set RP 172.24.84.16
PIM: Send Prune on Ethernet1 to 172.24.37.6 for (172.24.84.16/28, 224.2.0.1), RP
PIM: For RP, Prune-list: 10.9.0.0/16
PIM: For RP, Prune-list: 10.16.0.0/16
PIM: For RP, Prune-list: 10.49.0.0/16
PIM: For RP, Prune-list: 10.84.0.0/16
PIM: For RP, Prune-list: 10.146.0.0/16
PIM: For 10.3.84.1, Join-list: 172.24.84.16/28
PIM: Send periodic Join/Prune to RP via 172.24.37.6 (Ethernet1)
```

Related Commands

Command	Description
show pim group-map	Displays the group-to-protocol mapping table.
show pim interface	Displays interface-specific information for PIM.
show pim neighbor	Displays entries in the PIM neighbor table.

debug pix acl

To show PIX ACL debugging messages, use the **debug pix acl** command in privileged EXEC mode. To stop showing debugging messages, use the **no** form of this command.

debug pix acl

no debug pix acl

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco TAC. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example enables debugging messages for PIX ACLs:

```
hostname# debug pix acl
```

Related Commands

Command	Description
debug pix process	Shows debugging messages for xlate and secondary connections processing.
show debug	Shows all enabled debuggers.

debug pix cls

To show PIX CLS debugging messages, use the **debug pix cls** command in privileged EXEC mode. To stop showing debugging messages, use the **no** form of this command.

debug pix cls

no debug pix cls

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco TAC. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example enables debugging messages for PIX CLS:

```
hostname# debug pix cls
```

Related Commands

Command	Description
debug pix process	Shows debug messages for xlate and secondary connections processing.
show debug	Shows all enabled debuggers.

debug pix pkt2pc

To show debugging messages that trace packets sent to the uauth code and that trace the event where the uauth proxy session is cut through to the data path, use the **debug pix pkt2pc** command in privileged EXEC mode. To stop showing debugging messages, use the **no** form of this command.

debug pix pkt2pc

no debug pix pkt2pc

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debugging messages that trace packets sent to the uauth code and that trace the event where the uauth proxy session is cut through to the data path:

```
hostname# debug pix pkt2pc
```

Related Commands

Command	Description
debug pix process	Shows debugging messages for xlate and secondary connections processing.
show debug	Shows all enabled debuggers.

debug pix process

To show debugging messages for xlate and secondary connections processing, use the **debug pix process** command in privileged EXEC mode. To stop showing debugging messages, use the **no** form of this command.

debug pix process

no debug pix process

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debugging messages for xlate and secondary connections processing:

```
hostname# debug pix process
```

Related Commands

Command	Description
debug pix pkt2pc	Shows debugging messages that trace packets sent to the uauth code and that trace the event where the uauth proxy session is cut through to the data path.
show debug	Shows all enabled debuggers.

debug pix uauth

To show PIX uauth debugging messages, use the **debug pix uauth** command in privileged EXEC mode. To stop showing debugging messages, use the **no** form of this command.

debug pix uauth

no debug pix uauth

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco TAC. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example enables debugging messages for PIX uauth:

```
hostname# debug pix uauth
```

Related Commands

Command	Description
debug pix process	Shows debugging messages for xlate and secondary connections processing.
show debug	Shows all enabled debuggers.

debug pptp

To show debugging messages for PPTP application inspection, use the **debug pptp** command in privileged EXEC mode. To stop showing debugging messages for PPTP, use the **no** form of this command.

debug pptp [*level*]

no debug pptp [*level*]

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default value for the debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To see the current debugging command settings, enter the **show debug** command. To stop the debugging output, enter the **no debug** command. To stop all debugging messages from being displayed, enter the **no debug all** command.

Note Enabling the **debug pptp** command may slow down traffic on busy networks.

Examples

The following example enables debugging messages at the default level (1) for PPTP application inspection:

```
hostname# debug pptp
```

Related Commands

Command	Description
class-map	Defines the traffic class to which to apply security actions.
inspect pptp	Enables PPTP application inspection.
policy-map	Associates a class map with specific security actions.
service-policy	Applies a policy map to one or more interfaces.

debug radius

To show RADIUS messages between the ASA and a RADIUS AAA server, use the **debug radius** command in privileged EXEC mode. To stop showing RADIUS messages, use the **no** form of this command.

debug radius [**all** | **decode** | **session** | **user** *username*]]

no debug radius

Syntax Description

all	(Optional) Show RADIUS debugging messages for all users and sessions, including decoded RADIUS messages.
decode	(Optional) Show decoded content of RADIUS messages. Content of all RADIUS packets display, including hexadecimal values and the decoded, eye-readable versions of these values.
session	(Optional) Show session-related RADIUS messages. Packet types for sent and received RADIUS messages appear, but not the packet content.
user	(Optional) Show RADIUS debugging messages for a specific user.
username	Specifies the user whose messages you want to see. Valid with the **user** keyword only.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **debug radius** command displays detailed information about RADIUS messaging between the ASA and a RADIUS AAA server. The **no debug all** or **undebug all** command turns off all enabled debugging.

Examples

The following example shows decoded RADIUS messages, which happen to be accounting packets:

```
hostname(config)# debug radius decode
hostname(config)# RADIUS packet decode (accounting request)

-------------------------------------
```

```
Raw packet data (length = 216).....
i
Parsed packet data.....
Radius: Code = 4 (0x04)
Radius: Identifier = 105 (0x69)
Radius: Length = 216 (0x00D8)
Radius: Vector: 842E0E99F44C00C05A0A19AB88A81312
Radius: Type = 40 (0x28) Acct-Status-Type
Radius: Length = 6 (0x06)
Radius: Value (Hex) = 0x2
Radius: Type = 5 (0x05) NAS-Port
Radius: Length = 6 (0x06)
Radius: Value (Hex) = 0x1
Radius: Type = 4 (0x04) NAS-IP-Address
Radius: Length = 6 (0x06)
Radius: Value (IP Address) = 10.1.1.1 (0x0A010101)
Radius: Type = 14 (0x0E) Login-IP-Host
Radius: Length = 6 (0x06)
Radius: Value (IP Address) = 10.2.0.50 (0xD0FE1291)
Radius: Type = 16 (0x10) Login-TCP-Port
Radius: Length = 6 (0x06)
Radius: Value (Hex) = 0x50
Radius: Type = 44 (0x2C) Acct-Session-Id
Radius: Length = 12 (0x0C)
Radius: Value (String) =
30 78 31 33 30 31 32 39 66 65                       |  0x130129fe
Radius: Type = 1 (0x01) User-Name
Radius: Length = 9 (0x09)
Radius: Value (String) =
62 72 6f 77 73 65 72                                |  browser
Radius: Type = 46 (0x2E) Acct-Session-Time
Radius: Length = 6 (0x06)
Radius: Value (Hex) = 0x0
Radius: Type = 42 (0x2A) Acct-Input-Octets
Radius: Length = 6 (0x06)
Radius: Value (Hex) = 0x256D
Radius: Type = 43 (0x2B) Acct-Output-Octets
Radius: Length = 6 (0x06)
Radius: Value (Hex) = 0x3E1
Radius: Type = 26 (0x1A) Vendor-Specific
Radius: Length = 30 (0x1E)
Radius: Vendor ID = 9 (0x00000009)
Radius: Type = 1 (0x01) Cisco-AV-pair
Radius: Length = 24 (0x18)
Radius: Value (String) =
69 70 3a 73 6f 75 72 63 65 2d 69 70 3d 31 30 2e     |  ip:source-ip=10.
31 2e 31 2e 31 30                                   |  1.1.10
Radius: Type = 26 (0x1A) Vendor-Specific
Radius: Length = 27 (0x1B)
Radius: Vendor ID = 9 (0x00000009)
Radius: Type = 1 (0x01) Cisco-AV-pair
Radius: Length = 21 (0x15)
Radius: Value (String) =
69 70 3a 73 6f 75 72 63 65 2d 70 6f 72 74 3d 33     |  ip:source-port=3
34 31 33                                            |  413
Radius: Type = 26 (0x1A) Vendor-Specific
Radius: Length = 40 (0x28)
Radius: Vendor ID = 9 (0x00000009)
Radius: Type = 1 (0x01) Cisco-AV-pair
Radius: Length = 34 (0x22)
Radius: Value (String) =
69 70 3a 64 65 73 74 69 6e 61 74 69 6f 6e 2d 69     |  ip:destination-i
70 3d 32 30 38 2e 32 35 34 2e 31 38 2e 31 34 35     |  p=10.2.0.50
Radius: Type = 26 (0x1A) Vendor-Specific
```

```
Radius: Length = 30 (0x1E)
Radius: Vendor ID = 9 (0x00000009)
Radius: Type = 1 (0x01) Cisco-AV-pair
Radius: Length = 24 (0x18)
Radius: Value (String) =
69 70 3a 64 65 73 74 69 6e 61 74 69 6f 6e 2d 70    |  ip:destination-p
6f 72 74 3d 38 30                                  |  ort=80
```

Related Commands

Command	Description
show running-config	Displays the configuration that is running on the ASA.

debug redundant-interface

To show debugging messages about redundant interfaces, use the **debug redundant-interface** command in privileged EXEC mode. To stop showing debugging messages for redundant interfaces, use the **no** form of this command.

debug redundant-interface [*level*]

no debug redundant-interfac [*level*]

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debugging messages for redundant interfaces:

```
hostname# debug redundant-interface
```

Related Commands

Command	Description
interface redundant	Creates a redundant interface.
member-interface	Assigns a physical interface to a redundant interface.
redundant-interface	Changes the active interface in a redundant interface pair.
show debug	Shows all enabled debuggers.

debug rip

To display debugging information for RIP, use the **debug rip** command in privileged EXEC mode. To disable the debugging information display, use the **no** form of this command.

debug rip [**database** | **events**]

no debug rip [**database** | **events**]

Syntax Description

database	Displays RIP database events.
events	Displays RIP processing events.

Defaults

All RIP events are shown in the debugging output.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	The **database** and **events** keywords were added.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco TAC. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following is sample output from the **debug rip** command:

```
hostname# debug rip

RIP: broadcasting general request on GigabitEthernet0/1
RIP: broadcasting general request on GigabitEthernet0/2
RIP: Received update from 10.89.80.28 on GigabitEthernet0/1
    10.89.95.0 in 1 hops
    10.89.81.0 in 1 hops
    10.89.66.0 in 2 hops
    172.31.0.0 in 16 hops (inaccessible)
    0.0.0.0 in 7 hops
RIP: Sending update to 255.255.255.255 via GigabitEthernet0/1 (10.89.64.31)
```

```
    subnet 10.89.94.0, metric 1
    172.31.0.0 in 16 hops (inaccessible)
RIP: Sending update to 255.255.255.255 via GigabitEthernet0/2 (10.89.94.31)
    subnet 10.89.64.0, metric 1
    subnet 10.89.66.0, metric 3
    172.31.0.0 in 16 hops (inaccessible)
    default 0.0.0.0, metric 8
RIP: bad version 128 from 192.168.80.43
```

Related Commands

Command	Description
router rip	Configures a RIP process.
show running-config rip	Displays the RIP commands in the running configuration.

debug route

To display debugging information for general routing and failover debugging messages for routing, use the **debug route** command in privileged EXEC mode. To disable the debugging information display, use the **no** form of this command.

debug route [**ha** | **events**]

no debug route [**ha** | **events**]

Syntax Description

events	Displays general routing-related debugging messages.
ha	Displays Stateful Failover-related debugging messages for dynamic routing protocols.

Defaults

All general routing events and failover events for routing are shown in the debugging output.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
8.4(1)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco TAC. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

To display general routing debugging information, such as adding or deleting routes in the CP routing table, use the **debug route events** command.

Examples

The following is sample output from the **debug route events** command:

```
hostname# debug route events
add 10.0.3.0 255.255.255.0 via 10.1.1.10, ospf metric [110/40]
```

The following is sample output from the **debug route ha** command on the active unit:

```
ROUTE HA: Route HA start bulk sync
ROUTE HA: Sending Message Version: 1 Action: add Object: route Address: 10.0.0.0 Mask:
255.0.0.0
ROUTE HA: Sending Message Version: 1 Action: add Object: route Address: 10.0.1.0 Mask:
255.0.0.0
ROUTE HA: Sending Message Version: 1 Action: add Object: route Address: 10.0.3.0 Mask:
255.255.255.0
```

The following is sample output from the **debug route ha** command on the standby unit:

```
ROUTE HA: Processing rcvd msg with address: 10.0.3.0 mask: 255.255.255.0 gateway:
10.10.0.10
ROUTE HA: Received Msg ADD address: 10.0.3.0 mask: 255.255.255.0 gateway: 10.0.1.10
metric: 40
ROUTE HA: RIB Epoch number 0 assigned to NDB: 10.0.0.0
ROUTE HA: RIB epoch number 0 assigned to SDB: 10.0.3.0
```

Related Commands

Command	Description
debug rip	Displays RIP debugging information.
show debug route	Displays the general routing debugging configuration.

debug route cluster

To display debugging information for RIB table replication and dynamic updates through trace messages to determine whether or not the RIB table is correctly synchronized to slave units, use the **debug route cluster** command in privileged EXEC mode. To disable the debugging information display, use the **no** form of this command.

debug route cluster

no debug route cluster

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced. Applies only to the ASA 5580 and 5585-X.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco TAC. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following is sample output from the **debug route cluster** command:

```
hostname# debug route cluster
ROUTE CLUSTER: old ndb_epoch=1, RIB Epoch number 1 assigned to NDB: 192.168.33.0
ROUTE CLUSTER: old ndb_epoch=1, RIB Epoch number 1 assigned to NDB: 172.16.0.0
ROUTE CLUSTER: old ndb_epoch=1, RIB Epoch number 1 assigned to NDB: 192.168.32.0
ROUTE CLUSTER ip_route_delete: del 172.31.32.1 255.255.255.255 via 172.16.32.4, ospf
metric [110/13]
ROUTE CLUSTER ip_route_delete: delete subnet route to 172.31.32.1 255.255.255.255
ROUTE CLUSTER ip_route_delete: delete network route to 172.31.0.0
ROUTE CLUSTER: old ndb_epoch=1, RIB Epoch number 1 assigned to NDB: 172.16.0.0
ROUTE CLUSTER: old ndb_epoch=1, RIB Epoch number 1 assigned to NDB: 172.17.0.0
ROUTE CLUSTER: old ndb_epoch=1, RIB Epoch number 1 assigned to NDB: 172.18.0.0
```

```
ROUTE CLUSTER: old ndb_epoch=1, RIB Epoch number 1 assigned to NDB: 172.20.0.0
ROUTE CLUSTER: old ndb_epoch=1, RIB Epoch number 1 assigned to NDB: 172.30.0.0
ROUTE CLUSTER: old ndb_epoch=1, RIB Epoch number 1 assigned to NDB: 172.31.0.0
ROUTE CLUSTER: old ndb_epoch=1, RIB Epoch number 1 assigned to NDB: 192.168.32.0
```

Related Commands

Command	Description
debug route	Displays general routing and failover debugging messages for routing.
show debug route	Displays the general routing debugging configuration.

debug rtp

To display debugging information and error messages for RTP packets associated with H.323 and SIP inspection, use the **debug rtp** command in privileged EXEC mode. To disable the display of debugging information, use the **no** form of this command.

debug rtp [*level*]

no debug rtp [*level*]

Syntax Description

level	(Optional) Specifies the level of debugging.

Defaults

The default level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example shows how to enable debugging for RTP packets using the **debug rtp** command:

```
hostname# debug rtp 255
debug rtp  enabled at level 255
```

Related Commands

Command	Description
policy-map	Creates a Layer 3/4 policy map.

Command	Description
rtp-conformance	Checks RTP packets flowing on the pinholes for protocol conformance in H.323 and SIP.
show running-config policy-map	Displays all current policy map configurations.

debug rtsp

To show debugging messages for RTSP application inspection, use the **debug rtsp** command in privileged EXEC mode. To stop showing debugging messages for RTSP application inspection, use the **no** form of this command.

debug rtsp [*level*]

no debug rtsp [*level*]

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default value for the debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To see the current debugging command settings, enter the **show debug** command. To stop the debugging output, enter the **no debug** command. To stop all debugging messages from being displayed, enter the **no debug all** command.

Note Enabling the **debug rtsp** command may slow down traffic on busy networks.

Examples

The following example enables debugging messages at the default level (1) for RTSP application inspection:

```
hostname# debug rtsp
```

Related Commands

Command	Description
class-map	Defines the traffic class to which to apply security actions.
inspect rtsp	Enables RTSP application inspection.
policy-map	Associates a class map with specific security actions.
service-policy	Applies a policy map to one or more interfaces.

debug sdi

To display SDI authentication debugging information, use the **debug sdi** command in privileged EXEC mode. To disable the display of SDI debugging information, use the **no** form of this command.

debug sdi [*level*]

no debug sdi

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default value for the debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example enables SDI debugging messages. The **show debug** command indicates that SDI debugging messages are enabled.

```
hostname# debug sdi
debug sdi  enabled at level 1
hostname# show debug
debug sdi  enabled at level 1
hostname#
```

Related Commands

Command	Description
show debug	Displays the current debugging configuration.

debug sequence

To add a sequence number to the beginning of all debugging messages, use the **debug sequence** command in privileged EXEC mode. To disable the use of debugging sequence numbers, use the **no** form of this command.

debug sequence [*level*]

no debug sequence

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The defaults are as follows:

- Debugging message sequence numbers are disabled.
- The default value for the debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example enables sequence numbers in debugging messages. The **debug parser cache** command enables CLI parser debugging messages. The **show debug** command indicates the current debugging configuration. The CLI parser debugging messages shown include sequence numbers before each message.

```
hostname# debug sequence
debug sequence  enabled at level 1
hostname# debug parser cache
```

```
debug parser cache enabled at level 1
hostname# show debug
0: parser cache: try to match 'show debug' in exec mode
debug parser cache enabled at level 1
debug sequence  enabled at level 1
1: parser cache: hit at index 8
hostname#
```

Related Commands

Command	Description
show debug	Displays the current debugging configuration.

debug session-command

To show debugging messages for a session to an SSM, use the **debug session-command** command in privileged EXEC mode. To disable the display of debugging messages for sessions, use the **no** form of this command.

debug session-command [*level*]

no debug session-command [*level*]

Syntax Description

level	(Optional) Sets the level to display debugging messages. The range of values is between 1 and 255. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debugging messages for sessions:

```
hostname# debug session-command
```

Related Commands

Command	Description
session	Sessions to an SSM.

debug sip

To show debugging messages for SIP application inspection, use the **debug sip** command in privileged EXEC mode. To stop showing debugging messages for SIP application inspection, use the **no** form of this command.

debug sip [**ha**]

no debug sip [**ha**]

Syntax Description

ha	(Optional) Displays SIP Stateful Failover messages. When this keyword is used with the **debug sip** command on the active unit, debugging messages are displayed when SIP state information is sent to the standby unit. When this keyword is used with the **debug sip** command on the standby unit, debugging messages are displayed with state updates that are received from the active unit.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.0(2)	The **ha** keyword was added.

Usage Guidelines

To see the current **debug** command settings, enter the **show debug** command. To stop the debugging output, enter the **no debug** command. To stop all debugging messages from being displayed, enter the **no debug all** command.

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco TAC. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following is sample output from the **debug sip** command for the active unit or failover group in a failover pair:

```
hostname# debug sip ha
SIP HA:    Sending    update SESSION message from faddr 10.132.80.120/5060 laddr
10.130.80.4/50295 Call-id: 001201e8-8a36000d-196df7f1-17cfef14@10.130.80.4 From:
sip:1004@10.132.80.120:001201e88a3600124a7fad61-640406c0 To: sip:1009@10.132.80.120:
State:1

SIP HA:    msg sent to peer successful  Version: 1 Action: update Object: session

SIP HA:    Sending    update TX message from faddr 10.132.80.120/5060laddr
10.130.80.4/50295CSeq 101 INVITEState Transaction Calling
```

The following is sample output from the **debug sip** command for the standby unit or failover group in a failover pair:

```
hostname# debug sip ha
SIP HA:    Message    received from peer, Version: 1 Action: add Object: session

SIP HA:    Created    SIP session for faddr 10.132.80.120/5060 laddr 10.130.80.4/50295
Call-id: 001201e8-8a36000d-196df7f1-17cfef14@10.130.80.4 From:
sip:1004@10.132.80.120:001201e88a3600124a7fad61-640406c0 To: sip:1009@10.132.80.120: 1
total

SIP HA:    Message    received from peer, Version: 1 Action: add Object: tx

SIP HA:    Found an existing session faddr 10.132.80.120/5060 laddr 10.130.80.4/50295
Call-id: 001201e8-8a36000d-196df7f1-17cfef14@10.130.80.4 From:
sip:1004@10.132.80.120:001201e88a3600124a7fad61-640406c0 To: sip:1009@10.132.80.120:

SIP HA:    Created    SIP Transaction    for faddr 10.132.80.120/5060 to   laddr
10.130.80.4/50295CSeq 101 INVITEState Transaction Calling
```

Related Commands

Command	Description
class-map	Defines the traffic class to which to apply security actions.
inspect sip	Enables SIP application inspection.
show conn	Displays the connection state for different connection types.
show sip	Displays information about SIP sessions established through the ASA.
timeout	Sets the maximum idle time duration for different protocols and session types.

debug skinny

To show debugging messages for SCCP (Skinny) application inspection, use the **debug skinny** command in privileged EXEC mode. To stop showing debugging messages for SCCP application inspection, use the **no** form of this command.

debug skinny [*level*]

no debug skinny [*level*]

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default value for the debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To see the current **debug** command settings, enter the **show debug** command. To stop the debugging output, enter the **no debug** command. To stop all debugging messages from being displayed, enter the **no debug all** command.

Note Enabling the **debug skinny** command may slow down traffic on busy networks.

Examples

The following example enables debugging messages at the default level (1) for SCCP application inspection:

```
hostname# debug skinny
```

Related Commands

Command	Description
class-map	Defines the traffic class to which to apply security actions.
inspect skinny	Enables SCCP application inspection.
show skinny	Displays information about SCCP sessions established through the ASA.
show conn	Displays the connection state for different connection types.
timeout	Sets the maximum idle time duration for different protocols and session types.

debug sla monitor

To display debugging messages for the SLA monitor operation, use the **debug sla monitor** command in privileged EXEC mode. To disable debugging, use the **no** form of this command.

debug sla monitor [**error** | **trace**] [*sla-id*]

no debug sla monitor [*sla-id*]

Syntax Description

error	(Optional) Shows the output of IP SLA monitor error messages.
sla-id	(Optional) Shows the ID of the SLA to debug.
trace	(Optional) Shows the output of IP SLA monitor trace messages.

Defaults

Both error and trace messages are shown by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

Only 32 SLA operations can be debugged at one time.

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco TAC. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example enables SLA operation error debugging:

```
hostname(config)# debug sla monitor error
```

The following example shows how to display SLA operation trace messages for the specified SLA operation:

```
hostname(config)# debug sla monitor trace 123
```

Related Commands

Command	Description
clear configure route	Removes statically configured **route** commands.
clear route	Removes routes learned through dynamic routing protocols such as RIP.
show route	Displays route information.
show running-config route	Displays configured routes.

debug sqlnet

To show debugging messages for SQL*Net application inspection, use the **debug sqlnet** command in privileged EXEC mode. To stop showing debugging messages for SQL*Net application inspection, use the **no** form of this command.

debug sqlnet [*level*]

no debug sqlnet [*level*]

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default value for the debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To see the current **debug** command settings, enter the **show debug** command. To stop the debugging output, enter the **no debug** command. To stop all debugging messages from being displayed, enter the **no debug all** command.

Note Enabling the **debug sqlnet** command may slow down traffic on busy networks.

Examples

The following example enables debugging messages at the default level (1) for SQL*Net application inspection:

```
hostname# debug sqlnet
```

Related Commands

Command	Description
class-map	Defines the traffic class to which to apply security actions.
inspect sqlnet	Enables SQL*Net application inspection.
policy-map	Associates a class map with specific security actions.
service-policy	Applies a policy map to one or more interfaces.
show conn	Displays the connection state for different connection types, including SQL*Net.

debug ssh

To display debugging information and error messages associated with SSH, use the **debug ssh** command in privileged EXEC mode. To disable the display of debugging information, use the **no** form of this command.

debug ssh [*level*]

no debug ssh [*level*]

Syntax Description

level	(Optional) Specifies the level of debugging.

Defaults

The default level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following is sample output from the **debug ssh 255** command:

```
hostname# debug ssh 255
debug ssh  enabled at level 255
SSH2 0: send: len 64 (includes padlen 17)
SSH2 0: done calc MAC out #239
SSH2 0: send: len 32 (includes padlen 7)
SSH2 0: done calc MAC out #240
SSH2 0: send: len 64 (includes padlen 15)
SSH2 0: done calc MAC out #241
SSH2 0: send: len 32 (includes padlen 16)
SSH2 0: done calc MAC out #242
SSH2 0: send: len 64 (includes padlen 7)
SSH2 0: done calc MAC out #243
```

```
SSH2 0: send: len 64 (includes padlen 18)
SSH2 0: done calc MAC out #244
SSH2 0: send: len 64 (includes padlen 8)
SSH2 0: done calc MAC out #245
SSH2 0: send: len 64 (includes padlen 18)
SSH2 0: done calc MAC out #246
SSH2 0: send: len 64 (includes padlen 7)
SSH2 0: done calc MAC out #247
SSH2 0: send: len 64 (includes padlen 18)
SSH2 0: done calc MAC out #248
SSH2 0: send: len 64 (includes padlen 7)
SSH2 0: done calc MAC out #249
SSH2 0: send: len 64 (includes padlen 18)
SSH2 0: done calc MAC out #250
SSH2 0: send: len 64 (includes padlen 8)
SSH2 0: done calc MAC out #251
SSH2 0: send: len 64 (includes padlen 18)
SSH2 0: done calc MAC out #252
SSH2 0: send: len 64 (includes padlen 7)
SSH2 0: done calc MAC out #253
SSH2 0: send: len 64 (includes padlen 18)
SSH2 0: done calc MAC out #254
SSH2 0: send: len 64 (includes padlen 8)
SSH2 0: done calc MAC out #255
SSH2 0: send: len 64 (includes padlen 18)
SSH2 0: done calc MAC out #256
SSH2 0: send: len 64 (includes padlen 7)
SSH2 0: done calc MAC out #257
SSH2 0: send: len 64 (includes padlen 18)
SSH2 0: done calc MAC out #258
```

Related Commands

Command	Description
clear configure ssh	Clears all SSH commands from the running configuration.
show running-config ssh	Displays the current SSH commands in the running configuration.
show ssh sessions	Displays information about active SSH sessions to the ASA.
ssh	Allows SSH connectivity to the ASA from the specified client or network.

debug sunrpc

To show debugging messages for RPC application inspection, use the **debug sunrpc** command in privileged EXEC mode. To stop showing debugging messages for RPC application inspection, use the **no** form of this command.

debug sunrpc [*level*]

no debug sunrpc [*level*]

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default value for the debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To see the current debugging command settings, enter the **show debug** command. To stop the debugging output, enter the **no debug** command. To stop all debugging messages from being displayed, enter the **no debug all** command.

Note Enabling the **debug sunrpc** command may slow down traffic on busy networks.

Examples

The following example enables debugging messages at the default level (1) for RPC application inspection:

```
hostname# debug sunrpc
```

Related Commands

Command	Description
class-map	Defines the traffic class to which to apply security actions.
inspect sunrpc	Enables Sun RPC application inspection.
policy-map	Associates a class map with specific security actions.
show conn	Displays the connection state for different connection types, including RPC.
timeout	Sets the maximum idle time duration for different protocols and session types.

debug switch ilpm

To show debugging messages for models with a built-in switch, such as the ASA 5505, show debugging messages for PoE, use the **debug switch ilpm** command in privileged EXEC mode. To stop showing debugging messages for PoE, use the **no** form of this command.

debug switch ilpm [**events** | **errors**] [*level*]

no debug switch ilpm [**events** | **errors**] [*level*]

Syntax Description

errors	(Optional) Shows troubleshooting information when there is an error.
events	(Optional) Shows PoE events.
level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

By default, both events and errors are shown if you do not specify a keyword. The default level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debugging messages for PoE ports:

```
hostname# debug switch ilpm
```

Related Commands

Command	Description
interface vlan	Adds a VLAN interface.
debug switch manager	Shows debugging messages for VLAN assignment and **switchport** command-caused events and errors.
show debug	Shows all enabled debuggers.

debug switch manager

To show debugging messages for switch port models with a built-in switch, such as the ASA 5505, show debugging messages for VLAN assignment, and **switchport** command-caused events and errors, use the **debug switch manager** command in privileged EXEC mode. To stop showing debugging messages for switch ports, use the **no** form of this command.

debug switch manager [**events** | **errors**] [*level*]

no debug switch manager [**events** | **errors**] [*level*]

Syntax Description

errors	(Optional) Shows troubleshooting information when there is an error.
events	(Optional) Shows the switch manager events.
level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

By default, both events and errors are shown if you do not specify a keyword. The default level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debugging messages for switch ports:

```
hostname# debug switch manager
```

Related Commands

Command	Description
interface vlan	Adds a VLAN interface.
debug switch ilpm	Shows debugging messages for PoE.
show debug	Shows all enabled debuggers.

debug tacacs

To display TACACS+ debugging information, use the **debug tacacs** command in privileged EXEC mode. To disable the display of TACACS+ debugging information, use the **no** form of this command.

debug tacacs [**session** | **user** *username*]

no debug tacacs [**session** | **user** *username*]

Syntax Description

session	Displays session-related TACACS+ debugging messages.
user	Displays user-specific TACACS+ debugging messages. You can display TACACS+ debugging messages for only one user at a time.
username	Specifies the user whose TACACS+ debugging messages you want to view.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example enables TACACS+ debugging messages and provides sample output from the **show debug** command:

```
hostname# debug tacacs user admin342
hostname# show debug
debug tacacs user admin342
hostname#
```

Related Commands

Command	Description
show debug	Displays the current debugging configuration.

debug tcp-map

To show debugging messages for TCP application inspection maps, use the **debug tcp-map** command in privileged EXEC mode. To stop showing debugging messages for TCP application inspection, use the **no** form of this command.

debug tcp-map

no debug tcp-map

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco TAC. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example enables debugging messages for TCP application inspection maps. The **show debug** command indicates that debugging messages for TCP application inspection maps are enabled.

```
hostname# debug tcp-map
debug tcp-map enabled at level 1.
hostname# show debug
debug tcp-map enabled at level 1.
hostname#
```

Related Commands

Command	Description
show debug	Displays the current debugging configuration.

debug timestamps

To add timestamp information to the beginning of all debugging messages, use the **debug timestamps** command in privileged EXEC mode. To disable the use of debugging timestamps, use the **no** form of this command.

debug timestamps [*level*]

no debug timestamps

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The defaults are as follows:

- Debugging timestamp information is disabled.
- The default value for the debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco TAC. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example enables timestamps in debugging messages. The **debug parser cache** command enables CLI parser debugging messages. The **show debug** command indicates the current debugging configuration. The CLI parser debugging messages shown include timestamps before each message.

```
hostname# debug timestamps
debug timestamps  enabled at level 1
hostname# debug parser cache
debug parser cache enabled at level 1
```

```
hostname# show debug
1982769.770000000: parser cache: try to match 'show debug' in exec mode
1982769.770000000: parser cache: hit at index 8
hostname#
```

Related Commands

Command	Description
show debug	Displays the current debugging configuration.

debug user-identity

To debug the Identity Firewall, use the **debug user-identity** command in privileged EXEC mode. To disable the use of debug command, use the **no** form of this command.

debug user-identity {**acl** | **ad-agent** | **all** | **debug** | **error** | **fqdn** | **ha** | **ldap** | **logout-probe** | **process** | **tmatch** | **user** *user_name* | **user-group** *user_group_name*}

no debug user-identity {**acl** | **ad-agent** | **all** | **debug** | **error** | **fqdn** | **ha** | **ldap** | **logout-probe** | **process** | **tmatch** | **user** *user_name* | **user-group** *user_group_name*}

Syntax Description

acl	Enables debugging messages related to access list changes.
ad-agent	Enables debugging messages for the connection between the ASA and the Windows server on which the AD Agent is installed.
all	Enables all debugging messages for all aspects of the Identity Firewall.
debug	Enables debugging information about the debugging-level messages for the Identity Firewall.
error	Enables debugging information about errors in the user identity module or the Identity Firewall.
fqdn	Enables debugging messages about FQDN to IP address updates.
ha	Enables debugging messages for your high availablity deployment of the Identity Firewall. See the CLI configuration guide for information about the types of Identity Firewall deployments.
ldap	Enables debugging messages for the LDAP query that the ASA sends to Microsoft Active Directory for the user groups configured on the AD Server and for the reply that the ASA receives from Active Directory.
logout-probe	Enables debugging messages for logout probing.
process	Enables debugging messages for the user identity process of the Identity Firewall.
tmatch	Enables debugging messages related to tmatch changes.
user *user_name*	Enables debugging messages for the specified user in all domains.
user-group *user_group_name*	Enables debugging messages for the specified user group in all domains.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
8.4(2)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco TAC. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

debug user-identity logout-probe

Using the **debug user-identity logout-probe** command enables debugging messages for logout probing, including NetBIOS handling and inactive user check. The client logs onto the network through Microsoft Active Directory. The AD Server authenticates users and generates user login security logs. The ASA probes the NetBIOS of the client to pass inactive and no-response users. Enabling NetBIOS probing configures how often the ASA probes the user client IP address to determine whether the client is still active.

To minimize the NetBIOS packets, the ASA only sends a NetBIOS probe to a client when the user has been idle for more than the specified number of minutes. By default, NetBIOS probing is disabled.

debug user-identity tmatch

When the ASA resolves an FQDN network object, it populates the resolved IP addresses and other fields, such as the IP address of a user or user-group of an access-list in the tmatch lookup table.

Depending on the Identity Firewall configuration, the ASA updates IP addresses from the DNS server periodically or when the TTL of DNS entries expire, whichever comes first. When the ASA finds new IP addresses, it adds them to the tmatch lookup table. When existing IP addresses expire, the ASA removes them from the tmatch lookup table.

You can configure a longer DNS expire-entry timer to balance degradation of system performance because of tmatch recompilation; you must balance system performance with the security risk caused by the gap between DNS entries TTL expiration and the actual time when expired entries are removed from tmatch table.

Even when you configure the ASA with reasonable expire-DNS-entry value, the ASA can still recompile the tmatch lookup table periodically when DNS load balancing is configured; however, this does not guarantee that all valid IP addresses will be refreshed within any defined time period.

Some FQDN hosts can have very short TTL, which leads to frequent recompilation of the tmatch lookup table and a performance impact.

When the Identity Firewall process is disabled (no identity-firewall enable), the tmatch lookup table is not updated for new or changed IP-user mappings, and user-identity rules have any effect at all on security policies.

Examples

The following example shows how to turn off debugging for all aspects of the Identity Firewall, and then turn on debugging of the Identity Firewall process:

```
hostname# debug user-identity ?
  acluser-identity ACL message
  ad-agent              user-identity ad-agent message
  all                   All user-identity messages
  debug                 user-identity debug message
  error                 user-identity error message
```

```
  fqdn                  user-identity fqdn message
  ha                    user-identity HA message
  ldap                  user-identity ldap message
  logout-probe          user-identity logout-probe message
  process               user-identity process message
  tmatch                user-identity tmatch message
  user                  user-identity user message
  user-group            user-identity user-group message
hostname# no debug user-identity all
debug user-identity process enabled
hostname# debug user-identity process
```

Related Commands

Command	Description
show debug	Displays the current debugging configuration.

debug vpn-sessiondb

To display VPN-session database debugging information, use the **debug vpn-sessiondb** command in privileged EXEC mode. To disable the display of VPN-session database debugging information, use the **no** form of this command.

debug vpn-sessiondb [*level*]

no debug vpn-sessiondb

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default value for the debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco TAC. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example enables VPN-session database debugging messages. The **show debug** command indicates that VPN-session database debugging messages are enabled.

```
hostname# debug vpn-sessiondb
debug vpn-sessiondb enabled at level 1
hostname# show debug
debug vpn-sessiondb enabled at level 1
hostname#
```

Related Commands

Command	Description
show debug	Displays the current debugging configuration.

debug wccp

To enable logging of WCCP events, use the **debug wccp** command in privileged EXEC mode. To disable the logging of WCCP debugging messages, use the **no** form of this command.

debug wccp {**events | packets | subblocks**}

no debug wccp {**events | packets | subblocks**}

Syntax Description

events	Enables logging of WCCP session events.
packets	Enables logging of debugging messages about WCCP packet information.
subblocks	Enables logging of debugging messages about WCCP subblocks.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

The high priority assigned to debugging output can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco TAC. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example enables the logging of all WCCP session events:

```
hostname# debug wccp events
hostname#
```

The following example enables the logging of WCCP packet debugging messages:

```
hostname# debug wccp packets
hostname#
```

The following example disables the logging of WCCP debugging messages:

```
hostname# no debug wccp
```

```
hostname#
```

Related Commands

Command	Description
wccp	Enables support of WCCP.
show debug	Displays the current debugging configuration.

debug webvpn

To log WebVPN debugging messages, use the **debug webvpn** command in privileged EXEC mode. To disable the logging of WebVPN debugging messages, use the **no** form of this command.

debug webvpn [**chunk** | **cifs** | **citrix** | **failover** | **html** | **javascript** | **request** | **response** | **svc** | **transformation** | **url** | **util** | **xml**] [*level*]

no debug webvpn [**chunk** | **cifs** | **citrix** | **failover** | **html** | **javascript** | **request** | **response** | **svc** | **transformation** | **url** | **util** | **xml**] [*level*]

Syntax Description

chunk	Displays debugging messages about memory blocks used to support WebVPN connections.
cifs	Displays debugging messages about connections between CIFS)servers and WebVPN users.
citrix	Displays debug messages about connections between Citrix Metaframe Servers and Citrix ICA clients over WebVPN.
failover	Displays debugging messages about equipment failovers affecting WebVPN connections.
html	Displays debugging messages about HTML pages sent over WebVPN connections.
javascript	Displays debugging messages about JavaScript sent over WebVPN connections.
level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.
request	Displays debugging messages about requests issued over WebVPN connections.
response	Displays debugging messages about responses issued over WebVPN connections.
svc	Displays debugging messages about connections to SSL VPN clients over WebVPN.
transformation	Displays debugging messages about WebVPN content transformation.
url	Displays debugging messages about website requests issued over WebVPN connections.
util	Displays debugging messages about CPU utilization dedicated to support connections to WebVPN remote users.
xml	Displays debugging messages about JavaScript sent over WebVPN connections.

Defaults

The default value for the debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

The high priority assigned to debugging output can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco TAC. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following example enables WebVPN debugging messages for CIFS. The **show debug** command indicates that CIFS debugging messages are enabled.

```
hostname# debug webvpn cifs
INFO: debug webvpn cifs enabled at level 1.
hostname# show debug
debug webvpn cifs enabled at level 1
hostname#
```

Related Commands

Command	Description
show debug	Displays the current debugging configuration.

debug xdmcp

To show debugging messages for XDMCP application inspection, use the **debug xdmcp** command in privileged EXEC mode. To stop showing debugging messages for XDMCP application inspection, use the **no** form of this command.

debug xdmcp [*level*]

no debug xdmcp [*level*]

Syntax Description

level	(Optional) Sets the debugging message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

Defaults

The default value for the debugging level is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To see the current debugging command settings, enter the **show debug** command. To stop the debugging output, enter the **no debug** command. To stop all debugging messages from being displayed, enter the **no debug all** command.

Note Enabling the **debug xdmcp** command may slow down traffic on busy networks.

Examples

The following example enables debugging messages at the default level (1) for XDMCP application inspection:

```
hostname# debug xdmcp
```

Related Commands

Command	Description
class-map	Defines the traffic class to which to apply security actions.
inspect xdmcp	Enables XDMCP application inspection.
policy-map	Associates a class map with specific security actions.
service-policy	Applies a policy map to one or more interfaces.

debug xml

To display debugging information for the XML parser, use the **debug xml** command in privileged EXEC mode. To disable the display of debugging information, use the **no** form of this command.

debug xml [**element** | **event**]

no debug xml [**element** | **event**]

Syntax Description

element	(Optional) Displays debugging events related to processing individual XML elements.
event	(Optional) Displays XML parsing or error events.

Defaults

If no keywords are specified, all XML parser debugging messages are shown.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The following is sample output from the **debug xml element** command:

```
hostname# debug xml element
debug xml element enabled at level 1

XML Executes cmd: hostname hostname
XML Executes cmd: domain-name example.com
XML Executes cmd: names
XML Executes cmd: dns-guard
XML Executes cmd: !
XML Executes cmd: interface Ethernet0
XML Executes cmd:  nameif outside
XML Executes cmd:  security-level 0
```

```
XML Executes cmd:  ip address 192.168.5.151 255.255.255.0 standby 192.168.5.152
XML Executes cmd: interface Ethernet1
XML Executes cmd:  nameif inside
XML Executes cmd:  security-level 100
XML Executes cmd:  ip address 192.168.0.151 255.255.255.0 standby 192.168.0.152
XML Executes cmd: !
XML Executes cmd: boot system flash:/f
XML Executes cmd: ftp mode passive
XML Executes cmd: clock timezone jst 9
XML Executes cmd: dns server-group DefaultDNS
XML Executes cmd:  domain-name cisco.com
_tcp_listen: could not query index for interface 65535 port 23
XML Executes cmd: pager lines 24
XML Executes cmd: logging console debugging
XML Executes cmd: logging buffered debugging
XML Executes cmd: mtu outside 1500
XML Executes cmd: mtu inside 1500
XML Executes cmd: failover
XML Executes cmd: no asdm history enable
XML Executes cmd: arp timeout 14000
XML Executes cmd: route outside 0.0.0.0 0.0.0.0 192.168.5.1 1
XML Executes cmd: timeout xlate 3:00:00
XML Executes cmd: timeout conn 1:00:00 half-closed 0:10:00 udp 0:02:00 icmp 0:00:02
XML Executes cmd: timeout sunrpc 0:10:00 h323 0:05:00 h225 1:00:00 mgcp 0:05:00 mgcp-pat
0:05:00
XML Executes cmd: timeout sip 0:30:00 sip_media 0:02:00 sip-invite 0:03:00 sip-disconnect
0:02:00
XML Executes cmd: timeout uauth 0:05:00 absolute
XML Executes cmd: username user1 password mbO2jYs13AXlIAGa encrypted
XML Executes cmd: username sugi password EB3OP7Hu2hSu6x/7 encrypted
XML Executes cmd: http server enable
XML Executes cmd: http 0.0.0.0 0.0.0.0 outside
XML Executes cmd: no snmp-server location
XML Executes cmd: no snmp-server contact
XML Executes cmd: snmp-server enable traps snmp authentication linkup linkdown coldstart
XML Executes cmd: telnet timeout 5
XML Executes cmd: ssh timeout 5
XML Executes cmd: console timeout 0
XML Executes cmd: !
XML Executes cmd: class-map inspection_default
XML Executes cmd:  match default-inspection-traffic
XML Executes cmd: !
XML Executes cmd: !
XML Executes cmd: policy-map type inspect dns migrated_dns_map_1
XML Executes cmd:  parameters
XML Executes cmd:   message-length maximum 512
XML Executes cmd: policy-map global_policy
XML Executes cmd:  class inspection_default
XML Executes cmd:   inspect ftp
XML Executes cmd:   inspect h323 h225
XML Executes cmd:   inspect h323 ras
XML Executes cmd:   inspect netbios
XML Executes cmd:   inspect rsh
XML Executes cmd:   inspect rtsp
XML Executes cmd:   inspect skinny
XML Executes cmd:   inspect esmtp
XML Executes cmd:   inspect sqlnet
XML Executes cmd:   inspect sunrpc
XML Executes cmd:   inspect tftp
XML Executes cmd:   inspect sip
XML Executes cmd:   inspect xdmcp
XML Executes cmd: !
XML Executes cmd: service-policy global_policy global
XML error info: cmd-id 87 type info
```

```
XML Executes cmd: prompt hostname context
XML Executes cmd: crashinfo save disable
```

The following is sample output from the **debug xml event** command:

```
hostname# debug xml event
debug xml event enabled at level 1

XML parsing: data = <con... len = 3176
Exit XML parser, ret code = 0
```

Related Commands

Command	Description
show debug	Displays the debugging status for the various **debug** commands.

default through dhcp-server Commands

default (crl configure)

To return all CRL parameters to their system default values, use the **default** command in crl configure configuration mode.

default

Syntax Description

This command has no arguments or keywords.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Crl configure configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Invocations of this command do not become part of the active configuration. The crl configure configuration mode is accessible from the crypto ca trustpoint configuration mode. These parameters are used only when the LDAP server requires them.

Examples

The following example enters ca-crl configuration mode and returns CRL command values to their defaults:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# crl configure
hostname(ca-crl)# default
hostname(ca-crl)#
```

Related Commands

Command	Description
crl configure	Enters crl configure configuration mode.
crypto ca trustpoint	Enters trustpoint configuration mode.
protocol ldap	Specifies LDAP as a retrieval method for CRLs.

default (interface)

To return an interface command to its system default value, use the **default** command in interface configuration mode.

default *command*

Syntax Description

command	Specifies the command that you want to set to the default. For example: `default activation key`

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command is a runtime command; when you enter it, it does not become part of the active configuration.

Examples

The following example enters interface configuration mode and returns the security level to its default:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# default security-level
```

Related Commands

Command	Description
interface	Enters interface configuration mode.

default (OSPFv3)

To return an OSPFv3 parameter to its default value, use the **default** command in router configuration mode.

default [**area** | **auto-cost** | **default-information** | **default-metric** | **discard-route** | **distance** | **distribute-list** | **ignore** | **log-adjacency-changes** | **maximum-paths** | **passive-interface** | **redistribute** | **router-id** | **summary-prefix** | **timers**]

Syntax Description

area	(Optional) Specifies the OSPFv3 area parameters.
auto-cost	(Optional) Specifies the OSPFv3 interface cost according to the bandwidth.
default-information	(Optional) Distributes default information.
default-metric	(Optional) Specifies the metric for a redistributed route.
discard-route	(Optional) Enables or disables discard-route installation.
distance	(Optional) Specifies the administrative distance.
distribute-list	(Optional) Filters networks in routing updates.
ignore	(Optional) Ignores a specific event.
log-adjacency-changes	(Optional) Logs changes in the adjacency state.
maximum-paths	(Optional) Forwards packets over multiple paths.
passive-interface	(Optional) Suppresses routing updates on an interface.
redistribute	(Optional) Redistributes IPv6 prefixes from another routing protocol.
router-id	(Optional) Specifies the router ID for the specified routing process.
summary-prefix	(Optional) Specifies the OSPFv3 summary prefix.
timers	(Optional) Spoecifies the OSPFv3 timers.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Router configuration	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Use this command to reset OSPFv3 parameter default values.

Examples

The following example resets OSPFv3 timer parameters to their default values:

```
hostname(config-router)# default timers spf
```

Related Commands

Command	Description
distance	Specifies the administrative distance for OSPFv3 routing processes.
default-information originate	Generates a default external route into an OSPFv3 routing domain.
log-adjacency-changes	Configures the router to send a syslog message when an OSPFv3 neighbor goes up or down.

default (time-range)

To restore default settings for the **absolute** and **periodic** commands, use the **default** command in time-range configuration mode.

default {**absolute** | **periodic** *days-of-the-week time* **to** [*days-of-the-week*] *time*}

Syntax Description

absolute	Defines an absolute time when a time range is in effect.
days-of-the-week	The first occurrence of this argument is the starting day or day of the week that the associated time range is in effect. The second occurrence is the ending day or day of the week the associated statement is in effect. This argument is any single day or combinations of days: Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, and Sunday. Other possible values are: • daily—Monday through Sunday • weekdays—Monday through Friday • weekend—Saturday and Sunday If the ending days of the week are the same as the starting days of the week, you can omit them.
periodic	Specifies a recurring (weekly) time range for functions that support the time range feature.
time	Specifies the time in the format HH:MM. For example, 8:00 is 8:00 a.m. and 20:00 is 8:00 p.m.
to	Entry of the **to** keyword is required to complete the range "from start-time to end-time."

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Time-range configuration	•	•	•	•	

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

If the end days-of-the-week value is the same as the start value, you can omit them.

If a **time-range** command has both **absolute** and **periodic** values specified, then the **periodic** commands are evaluated only after the absolute start time is reached, and are not further evaluated after the absolute end time is reached.

The time-range feature relies on the system clock of the ASA; however, the feature works best with NTP synchronization.

Examples

The following example shows how to restore the default behavior of the **absolute** keyword:

```
hostname(config-time-range)# default absolute
```

Related Commands

Command	Description
absolute	Defines an absolute time when a time range is in effect.
periodic	Specifies a recurring (weekly) time range for functions that support the time range feature.
time-range	Defines access control to the ASA based on time.

default user group

For Cloud Web Security, to specify the default username and/or group if the ASA cannot determine the identity of the user coming into the ASA, use the **default user group** command in parameters configuration mode. To remove the default user or group, use the **no** form of this command. You can access the parameters configuration mode by first entering the **policy-map type inspect scansafe** command.

default {[**user** *username*] [**group** *groupname*]}

no default [**user** *username*] [**group** *groupname*]

Syntax Description

username	Specifies the default username.
groupname	Specifies the default group name.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

If the ASA cannot determine the identity of the user coming into the ASA, then the default user and/or group is included in the HTTP header.

Examples

The following example sets a default name as “Boulder” and a group name as “Cisco”:

```
hostname(config)# policy-map type inspect scansafe cws_inspect_pmap1
hostname(config-pmap)# parameters
hostname(config-pmap-p)# http
hostname(config-pmap-p)# default name Boulder group Cisco
```

Related Commands

Command	Description
class-map type inspect scansafe	Creates an inspection class map for whitelisted users and groups.
http[**s**] (parameters)	Specifies the service type for the inspection policy map, either HTTP or HTTPS.
inspect scansafe	Enables Cloud Web Security inspection on the traffic in a class.
license	Configures the authentication key that the ASA sends to the Cloud Web Security proxy servers to indicate from which organization the request comes.
match user group	Matches a user or group for a whitelist.
policy-map type inspect scansafe	Creates an inspection policy map so you can configure essential parameters for the rule and also optionally identify the whitelist.
retry-count	Enters the retry counter value, which is the amount of time that the ASA waits before polling the Cloud Web Security proxy server to check its availability.
scansafe	In multiple context mode, allows Cloud Web Security per context.
scansafe general-options	Configures general Cloud Web Security server options.
server {**primary** | **backup**}	Configures the fully qualified domain name or IP address of the primary or backup Cloud Web Security proxy servers.
show conn scansafe	Shows all Cloud Web Security connections, as noted by the capitol Z flag.
show scansafe server	Shows the status of the server, whether it's the current active server, the backup server, or unreachable.
show scansafe statistics	Shows total and current http connections.
user-identity monitor	Downloads the specified user or group information from the AD agent.
whitelist	Performs the whitelist action on the class of traffic.

default-acl

To specify the ACL to be used as the default ACL for NAC Framework sessions that fail posture validation, use the **default-acl** command in nac-policy-nac-framework configuration mode. To remove the command from the NAC policy, use the **no** form of the command.

[**no**] **default-acl** *acl-name*

Syntax Description

acl-name	Names the access control list to be applied to the session.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Nac-policy-nac-framework configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.
8.0(2)	"nac-" was removed from the command name. The command moved from group-policy configuration mode to nac-policy-nac-framework configuration mode.

Usage Guidelines

Each group policy points to a default ACL to be applied to hosts that match the policy and are eligible for NAC. The ASA applies the NAC default ACL before posture validation. After posture validation, the ASA replaces the default ACL with the one obtained from the Access Control Server for the remote host. It retains the default ACL if posture validation fails.

The ASA also applies the NAC default ACL if clientless authentication is enabled (which is the default setting).

Examples

The following example identifies acl-1 as the ACL to be applied before posture validation succeeds:

```
hostname(config-group-policy)# default-acl acl-1
hostname(config-group-policy)
```

The following example inherits the ACL from the default group policy:

```
hostname(config-group-policy)# no default-acl
hostname(config-group-policy)
```

Related Commands

Command	Description
nac-policy	Creates and accesses a Cisco NAC policy, and specifies its type.
nac-settings	Assigns a NAC policy to a group policy.
debug nac	Enables logging of NAC Framework events.
show vpn-session_summary.db	Displays the number of IPsec, WebVPN, and NAC sessions.
show vpn-session.db	Displays information about VPN sessions, including NAC results.

default enrollment

To return all enrollment parameters to their system default values, use the **default enrollment** command in crypto ca trustpoint configuration mode.

default enrollment

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Crypto ca trustpoint configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Invocations of this command do not become part of the active configuration.

Examples

The following example enters crypto ca trustpoint configuration mode for trustpoint central, and returns all enrollment parameters to their default values within trustpoint central:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# default enrollment
hostname(ca-trustpoint)#
```

Related Commands

Command	Description
clear configure crypto ca trustpoint	Removes all trustpoints.
crl configure	Enters crl configuration mode.
crypto ca trustpoint	Enters trustpoint configuration mode.

default-domain

To set a default domain name for users of the group policy, use the **default-domain** command in group-policy configuration mode. To delete a domain name, use the **no** form of this command.

default-domain {**value** *domain-name* | **none**}

no default-domain [*domain-name*]

Syntax Description

none	Indicates that there is no default domain name. Sets a default domain name with a null value, thereby disallowing a default domain name. Prevents inheriting a default domain name from a default or specified group policy.
value *domain-name*	Identifies the default domain name for the group.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To prevent users from inheriting a domain name, use the **default-domain none** command.

The ASA passes the default domain name to the AnyConnect Secure Mobility Client or the legacy VPN client (IPsec/IKEv1) to append to DNS queries that omit the domain field. This domain name applies only to tunneled packets. When there are no default domain names, users inherit the default domain name in the default group policy.

You can use only alphanumeric characters, hyphens (-), and periods (.) in default domain names.

Examples

The following example shows how to set a default domain name of FirstDomain for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# default-domain value FirstDomain
```

Related Commands

Command	Description
split-dns	Provides a list of domains to be resolved through the split tunnel.
split-tunnel-network-list	Identifies the access list the ASA uses to distinguish networks that require tunneling and those that do not.
split-tunnel-policy	Lets an IPsec client conditionally direct packets over an IPsec tunnel in encrypted form, or to a network interface in clear text form.

default-group-policy

To specify the set of attributes that the user inherits by default, use the **default-group-policy** command in tunnel-group general-attributes configuration mode. To eliminate a default group policy name, use the **no** form of this command.

default-group-policy *group-name*

no default-group-policy *group-name*

Syntax Description

group-name	Specifies the name of the default group.

Defaults

The default group name is DfltGrpPolicy.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tunnel-group general-attributes configuration	•	—	•	—	—

Command History

Version	Modification
7.0(1)	This command was introduced.
7.1(1)	The **default-group-policy** command in webvpn configuration mode was deprecated. The **default-group-policy** command in tunnel-group general-attributes mode replaced it.

Usage Guidelines

In Version 7.1(1), if you enter this command in webvpn configuration mode, it is transformed to the same command in tunnel-group general-attributes mode.

The default group policy DfltGrpPolicy comes with the initial configuration of the ASA. You can apply this attribute to all tunnel group types.

Examples

The following example entered in config-general configuration mode, specifies a set of attributes for users to inherit by default for an IPsec LAN-to-LAN tunnel group named "standard-policy." This set of commands defines the accounting server, the authentication server, the authorization server, and the address pools.

```
hostname(config)# tunnel-group standard-policy type ipsec-ra
hostname(config)# tunnel-group standard-policy general-attributes
hostname(config-tunnel-general)# default-group-policy first-policy
hostname(config-tunnel-general)# accounting-server-group aaa-server123
hostname(config-tunnel-general)# address-pool (inside) addrpool1 addrpool2 addrpool3
hostname(config-tunnel-general)# authentication-server-group aaa-server456
```

```
hostname(config-tunnel-general)# authorization-server-group aaa-server78
hostname(config-tunnel-general)#
```

Related Commands

Command	Description
clear-configure tunnel-group	Clears all configured tunnel groups.
group-policy	Creates or edits a group policy
show running-config tunnel group	Shows the tunnel group configuration for all tunnel groups or for a particular tunnel group.
tunnel-group general-attributes	Specifies the general attributes for the named tunnel group.

default-group-policy (webvpn)

To specify the name of the group policy to use when the WebVPN or e-mail proxy configuration does not specify a group policy, use the **default-group-policy** command in various configuration modes. To remove the attribute from the configuration, use the **no** form of this command.

default-group-policy *groupname*

no default-group-policy

Syntax Description

groupname	Identifies the previously configured group policy to use as the default group policy. Use the **group-policy** command to configure a group policy.

Defaults

A default group policy, named *DfltGrpPolicy*, always exists on the ASA. This **default-group-policy** command lets you substitute a group policy that you create as the default group policy for WebVPN and e-mail proxy sessions. An alternative is to edit the DfltGrpPolicy.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration	•	—	•	—	—
Imap4s configuration	•	—	•	—	—
Pop3s configuration	•	—	•	—	—
Smtps configuration	•	—	•	—	—

Command History

Version	Modification
7.0(1)	This command was introduced.
7.1(1)	This command was deprecated in webvpn configuration mode and moved to tunnel-group general-attributes configuration mode.

Usage Guidelines

WebVPN, IMAP4S, POP3S, and SMTPS sessions require either a specified or a default group policy. For WebVPN, use this command in webvpn configuration mode. For e-mail proxy, use this command in the applicable e-mail proxy mode.

In Version 7.1(1), if you enter this command in webvpn configuration mode, it is transformed to the same command in tunnel-group general-attributes configuration mode.

You can edit, but not delete the system DefaultGroupPolicy. It has the following AVPs:

Attribute	Default Value
wins-server	none
dns-server	none
dhcp-network-scope	none
vpn-access-hours	unrestricted
vpn-simultaneous-logins	3
vpn-idle-timeout	30 minutes
vpn-session-timeout	none
vpn-filter	none
vpn-tunnel-protocol	WebVPN
ip-comp	disable
re-xauth	disable
group-lock	none
pfs	disable
client-access-rules	none
banner	none
password-storage	disabled
ipsec-udp	disabled
ipsec-udp-port	0
backup-servers	keep-client-config
split-tunnel-policy	tunnelall
split-tunnel-network-list	none
default-domain	none
split-dns	none
intercept-dhcp	disable
client-firewall	none
secure-unit-authentication	disabled
user-authentication	disabled
user-authentication-idle-timeout	none
ip-phone-bypass	disabled
leap-bypass	disabled
nem	disabled
webvpn attributes	
filter	none
functions	disabled
homepage	none
html-content-filter	none
port-forward	disabled
port-forward-name	none
url-list	none

Examples

The following example shows how to specify a default group policy called WebVPN7 for WebVPN:

```
hostname(config)# webvpn
hostname(config-webvpn)# default-group-policy WebVPN7
```

default-idle-timeout

To set a default idle timeout value for WebVPN users, use the **default-idle-timeout** command in webvpn configuration mode. To remove the default idle timeout value from the configuration and reset the default, use the **no** form of this command.

default-idle-timeout *seconds*

no default-idle-timeout

Syntax Description

seconds	Specifies the number of seconds for the idle time out. The minimum is 60 seconds, maximum is 1 day (86400 seconds).

Defaults

1800 seconds (30 minutes).

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The ASA uses the value you set here if there is no idle timeout defined for a user, if the value is 0, or if the value does not fall into the valid range. The default idle timeout prevents stale sessions.

We recommend that you set this command to a short time period, because a browser set to disable cookies (or one that prompts for cookies and then denies them) can result in a user not connecting but nevertheless appearing in the sessions database. If the maximum number of connections permitted is set to one (via the **vpn-simultaneous-logins** command), the user cannot log back in because the database indicates that the maximum number of connections already exists. Setting a low idle timeout removes such phantom sessions quickly, and lets a user log in again.

Examples

The following example shows how to set the default idle timeout to 1200 seconds (20 minutes):

```
hostname(config)# webvpn
hostname(config-webvpn)# default-idle-timeout 1200
```

Related Commands

Command	Description
vpn-simultaneous-logins	Sets the maximum number of simultaneous VPN sessions permitted.

default-information (EIGRP)

To control the candidate default route information for the EIGRP routing process, use the **default-information** command in router configuration mode. To suppress EIGRP candidate default route information in incoming or outbound updates, use the **no** form of this command.

default-information {**in** | **out**} [*acl-name*]

no default-information {**in** | **out**}

Syntax Description

acl-name	(Optional) Specifies the named standard access list.
in	Configures EIGRP to accept exterior default routing information.
out	Configures EIGRP to advertise external routing information.

Defaults

Exterior routes are accepted and sent.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

Only the **no** form of the command or **default-information** commands with an access list specified will appear in the running configuration because, by default, the candidate default routing information is accepted and sent. The **no** form of the command does not take an *acl-name* argument.

Examples

The following example disables the receipt of exterior or candidate default route information:

```
hostname(config)# router eigrp 100
hostname(config-router)# no default-information in
```

Related Commands

Command	Description
router eigrp	Creates an EIGRP routing process and enters configuration mode for that process.

default-information originate (OSPFv2 and OSPFv3)

To generate a default external route into an OSPFv2 or OSPFv3 routing domain, use the **default-information originate** command in router configuration mode or IPv6 router configuration mode. To disable this feature, use the **no** form of this command.

default-information originate [**always**] [**metric** *value*] [**metric-type** {**1** | **2**}] [**route-map** *map-name*]

no default-information originate [[**always**] [**metric** *value*] [**metric-type** {**1** | **2**}] [**route-map** *map-name*]]

Syntax Description

always	(Optional) Always advertises the default route whether or not the software has a default route.
metric *value*	(Optional) Specifies the OSPF default metric value, from 0 to 16777214.
metric-type {**1** | **2**}	(Optional) Specifies the external link type associated with the default route advertised into the OSPF routing domain. Valid values are as follows: • **1**—Type 1 external route. • **2**—Type 2 external route.
route-map *map-name*	(Optional) Specifies the name of the route map to apply.

Defaults

The default values are as follows:

- **metric** *value* is 1.
- **metric-type** is 2.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
IPv6 router configuration	•	—	•	—	—
Router configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Added support for OSPFv3.

Usage Guidelines

Using the **no** form of this command with optional keywords and arguments only removes the optional information from the command. For example, entering the **no default-information originate metric** *3* command removes the **metric** *3* option from the command in the running configuration. To remove the complete command from the running configuration, use the **no** form of the command without any options: **no default-information originate**.

Examples

The following example shows how to use the **default-information originate** command with an optional metric and metric type:

```
hostname(config-rtr)# default-information originate always metric 3 metric-type 2
hostname(config-rtr)#
```

Related Commands

Command	Description
router ospf	Enters router configuration mode.
show running-config router	Displays the OSPFv2 commands in the global router configuration.
ipv6 router ospf	Enters IPv6 router configuration mode.
show running-config ipv6 router	Displays the OSPFv3 commands in the global router configuration.

default-information originate (RIP)

To generate a default route into RIP, use the **default-information originate** command in router configuration mode. To disable this feature, use the **no** form of this command.

default-information originate [**route-map** *name*]

no default-information originate [**route-map** *name*]]

Syntax Description

route-map *name*	(Optional) Name of the route map to apply. The routing process generates the default route if the route map is satisfied.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

The route map referenced in the **default-information originate** command cannot use an extended access list; it can use only a standard access list.

Examples

The following example shows how to generate a default route into RIP:

```
hostname(config)# router rip
hostname(config-router)# network 10.0.0.0
hostname(config-router)# default-information originate
```

Related Commands

Command	Description
router rip	Enters router configuration mode for the RIP routing process.
show running-config router	Displays the commands in the global router configuration.

default-language

To set the default language displayed on the Clientless SSL VPN pages, use the **default-language** command in webvpn configuration mode.

default-language *language*

Syntax Description

language	Specifies the name of a previously imported translation table.

Defaults

The default language is en-us (English spoken in the United States).

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

The ASA provides language translation for the portal and screens displayed to users that initiate browser-based, clientless SSL VPN connections, as well as the user interface displayed to AnyConnect VPN Client users.

The default language is displayed to Clientless SSL VPN users when they initially connect to the ASA, before logging in. Thereafter, the language displayed is affected by the tunnel group or group policy settings and any customization that they reference.

Examples

The following example changes the default language to Chinese with the name *Sales*:

```
hostname(config-webvpn)# default-language zh
```

Related Commands

Command	Description
import webvpn translation-table	Imports a translation table.
revert	Removes translation tables from cache memory.
show import webvpn translation-table	Displays information about imported translation tables.

default-metric

To specify the EIGRP metrics for redistributed routes, use the **default-metric** command in router configuration mode. To restore the default values, use the **no** form of this command.

default-metric *bandwidth delay reliability loading mtu*

no default-metric *bandwidth delay reliability loading mtu*

Syntax Description

bandwidth	The minimum bandwidth of the route in kilobytes per second. Valid values are from 1 to 4294967295.
delay	The route delay in tens of microseconds. Valid values are 1 to 4294967295.
loading	The effective bandwidth of the route expressed as a number from 1 to 255 (255 is 100 percent loading).
mtu	The smallest allowed value for the MTU, expressed in bytes. Valid values are from 1 to 65535.
reliability	The likelihood of successful packet transmission expressed as a number from 0 through 255. The value 255 means 100 percent reliability; 0 means no reliability.

Defaults

Only connected routes can be redistributed without a default metric. The metric of redistributed connected routes is set to 0.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

You must use a default metric to redistribute a protocol into EIGRP unless you use the **metric** keyword and attributes in the **redistribute** command. Metric defaults have been carefully set to work for a wide variety of networks. Take great care when changing these values. Keeping the same metrics is supported only when you are redistributing from static routes.

The minimum MTU allowed on an IPv6 enabled interface is 1280 bytes; however, if IPsec is enabled on the interface, the MTU value should not be set below 1380 because of the overhead of IPsec encryption. Setting the interface below 1380 bytes may result in dropped packets.

Examples

The following example shows how the redistributed RIP route metrics are translated into EIGRP metrics with values as follows: bandwidth = 1000, delay = 100, reliability = 250, loading = 100, and MTU = 1500.

```
hostname(config)# router eigrp 100
hostname(config-router)# network 172.16.0.0
hostname(config-router)# redistribute rip
hostname(config-router)# default-metric 1000 100 250 100 1500
```

Related Commands

Command	Description
router eigrp	Creates an EIGRP routing process and enters router configuration mode for that process.
redistribute (EIGRP)	Redistributes routes into the EIGRP routing process.

delay

To set a delay value for an interface, use the **delay** command in interface configuration mode. To restore the default delay value, use the **no** form of this command.

delay *delay-time*

no delay

Syntax Description

delay-time	The delay time in tens of microseconds. Valid values are from 1 to 16777215.

Defaults

The default delay depends upon the interface type. Use the **show interface** command to see the delay value for an interface.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

The value entered is in tens of microseconds. The delay value displayed in the **show interface** output is in microseconds.

Examples

The following example changes the delay on an interface from the default 1000 to 2000. Truncated **show interface** command output is included before and after the **delay** command to show how the command affects the delay values. The delay value is noted in the second line of the **show interface** output, after the DLY label.

Notice that the command entered to change the delay value to 2000 is **delay 200**, not **delay 2000**. This is because the value entered with the **delay** command is in tens of microseconds, and the **show interface** output displays microseconds.

```
hostname(config)# interface Ethernet0/0
hostname(config-if)# show interface Ethernet0/0

Interface Ethernet0/0 "outside", is up, line protocol is up
  Hardware is i82546GB rev03, BW 100 Mbps, DLY 1000 usec
        Auto-Duplex(Half-duplex), Auto-Speed(100 Mbps)
```

```
        MAC address 0013.c480.7e16, MTU 1500
        IP address 10.86.194.224, subnet mask 255.255.254.0
! Remainder of the output removed

hostname(config-if)# delay 200
hostname(config-if)# show interface Ethernet0/0

Interface Ethernet0/0 "outside", is up, line protocol is up
  Hardware is i82546GB rev03, BW 100 Mbps, DLY 2000 usec
        Auto-Duplex(Half-duplex), Auto-Speed(100 Mbps)
        MAC address 0013.c480.7e16, MTU 1500
        IP address 10.86.194.224, subnet mask 255.255.254.0
! Remainder of the output removed
```

Related Commands

Command	Description
show interface	Displays interface statistics and settings.

delete

To delete a file from flash memory, use the **delete** command in privileged EXEC mode.

delete [**/noconfirm**] [**/recursive**] [**disk0: | disk1: | flash:**] [*path/*] *filename*

Syntax Description

/noconfirm	(Optional) Does not prompt for confirmation.
/recursive	(Optional) Deletes the specified file recursively in all subdirectories.
disk0:	(Optional) Specifies the internal flash memory.
disk1:	(Optional) Specifies the external flash memory card.
filename	Specifies the name of the file to delete.
flash:	(Optional) Specifies the internal flash memory. This keyword is the same as **disk0**.
path/	(Optional) Specifies to the path to the file.

Defaults

If you do not specify a directory, the directory is the current working directory by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The file is deleted from the current working directory if a path is not specified. Wildcards are supported when deleting files. When deleting files, you are prompted with the filename and must confirm the deletion.

Examples

The following example shows how to delete a file named test.cfg in the current working directory:

```
hostname# delete test.cfg
```

Related Commands

Command	Description
cd	Changes the current working directory to the one specified.

Command	Description
rmdir	Removes a file or directory.
show file	Displays the specified file.

deny-message

To change the message delivered to a remote user who logs into WebVPN successfully, but has no VPN privileges, use the **deny-message value** command in group-webvpn configuration mode. To remove the string so that the remote user does not receive a message, use the **no** form of this command.

deny-message value *string*

no deny-message value

Syntax Description

string	Allows up to 491 alphanumeric characters, including special characters, spaces, and punctuation.

Defaults

The default deny message is: “Login was successful, but because certain criteria have not been met or due to some specific group policy, you do not have permission to use any of the VPN features. Contact your IT administrator for more information.”

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	This command moved from tunnel-group webvpn configuration mode to group-webvpn configuration mode.

Usage Guidelines

Before entering this command, you must enter the **group-policy** *name* **attributes** command in global configuration mode, then the **webvpn** command. (This step assumes you already have created the policy name.)

The **no deny-message none** command removes the attribute from the group-webvpn configuration. The policy inherits the attribute value.

When typing the string in the **deny-message value** command, continue typing even if the command wraps.

The text appears on the remote user’s browser upon login, independent of the tunnel policy used for the VPN session.

Examples

The following example shows the first command that creates an internal group policy named group2. The subsequent commands modify the deny message associated with that policy:

```
hostname(config)# group-policy group2 internal
hostname(config)# group-policy group2 attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# deny-message value "Your login credentials are OK. However,
you have not been granted rights to use the VPN features. Contact your administrator for
more information."
hostname(config-group-webvpn)
```

Related Commands

Command	Description
clear configure group-policy	Removes all group policy configuration.
group-policy	Creates a group policy.
group-policy attributes	Enters the group-policy attribute configuration mode.
show running-config group-policy	Displays the running group policy configuration for the policy named.
webvpn	Enters group-policy webvpn configuration mode.

deny version

To deny a specific version of SNMP traffic, use the **deny version** command in snmp-map configuration mode. To disable this command, use the **no** form of this command.

deny version *version*

no deny version *version*

Syntax Description

version	Specifies the version of SNMP traffic that the ASA drops. The permitted values are **1**, **2**, **2c**, and **3**.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Snmp-map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Use the **deny version** command to restrict SNMP traffic to specific versions of SNMP. Earlier versions of SNMP were less secure, so restricting SNMP traffic to Version 2 may be specified by your security policy. You use the **deny version** command within an SNMP map, which you configure using the **snmp-map** command, which is accessible by entering the **snmp-map** command in global configuration mode. After creating the SNMP map, you enable the map using the **inspect snmp** command, and then apply it to one or more interfaces using the **service-policy** command.

Examples

The following example shows how to identify SNMP traffic, define a SNMP map, define a policy, and apply the policy to the outside interface:

```
hostname(config)# access-list snmp-acl permit tcp any any eq 161
hostname(config)# access-list snmp-acl permit tcp any any eq 162
hostname(config)# class-map snmp-port
hostname(config-cmap)# match access-list snmp-acl
hostname(config-cmap)# exit
hostname(config)# snmp-map inbound_snmp
hostname(config-snmp-map)# deny version 1
hostname(config-snmp-map)# exit
hostname(config)# policy-map inbound_policy
hostname(config-pmap)# class snmp-port
```

```
hostname(config-pmap-c)# inspect snmp inbound_snmp
hostname(config-pmap-c)# exit
hostname(config-pmap)# exit
hostname(config)# service-policy inbound_policy interface outside
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
inspect snmp	Enables SNMP application inspection.
policy-map	Associates a class map with specific security actions.
snmp-map	Defines an SNMP map and enables SNMP map configuration mode.
service-policy	Applies a policy map to one or more interfaces.

description

To add a description for a named configuration unit (for example, for a context or for an object group, or for a DAP record), use the **description** command in various configuration modes. To remove the description, use the **no** form of this command.

description *text*

no description

Syntax Description

text	Sets the description as a text string of up to 200 characters in length. The description adds helpful notes in your configuration. For dynamic-access-policy-record mode, the maximum length is 80 characters. If you want to include a question mark (?) in the string, you must type **Ctrl-V** before typing the question mark so you do not inadvertently invoke CLI help.

Defaults

No default behavior or values.

Command Modes

This command is available in various configuration modes.

Command History

Release	Modification
7.0(1)	This command was introduced.
8.0(2)	Support was added for the dynamic-access-policy-record configuration mode.

Examples

The following example adds a description to the "Administration" context configuration:

```
hostname(config)# context administrator
hostname(config-context)# description This is the admin context.
hostname(config-context)# allocate-interface gigabitethernet0/0.1
hostname(config-context)# allocate-interface gigabitethernet0/1.1
hostname(config-context)# config-url flash://admin.cfg
```

Related Commands

Command	Description
class-map	Identifies traffic to which you apply actions in the **policy-map** command.
context	Creates a security context in the system configuration and enters context configuration mode.
gtp-map	Controls parameters for the GTP inspection engine.
interface	Configures an interface and enters interface configuration mode.
object-group	Identifies traffic to include in the **access-list** command.
policy-map	Identifies actions to apply to traffic identified by the **class-map** command.

dhcp client route distance

To configure an administrative distance for routes learned through DHCP, use the **dhcp client route distance** command in interface configuration mode. To restore the default setting, use the **no** form of this command.

dhcp client route distance *distance*

no dhcp client route distance *distance*

Syntax Description

distance	The administrative distance to apply to routes learned through DHCP. Valid values are from 1 to 255.

Defaults

Routes learned through DHCP are given an administrative distance of 1 by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

The **dhcp client route distance** command is checked only when a route is learned from DHCP. If the **dhcp client route distance** command is entered after a route is learned from DHCP, the administrative distance specified does not affect the existing learned route. Only routes learned after the command was entered have the specified administrative distance.

You must specify the **setroute** option in the **ip address dhcp** command to obtain routes through DHCP.

If DHCP is configured on multiple interfaces, you must use the **dhcp client route distance** command on each of the interfaces to indicate the priority of the installed routes.

Examples

The following example obtains the default route through DHCP on GigabitEhternet0/2. The route is tracked by tracking entry object 1. The SLA operation monitors the availability of the 10.1.1.1 gateway off of the outside interface. If the SLA operation fails, then the backup route obtained through DHCP on GigabitEthernet0/3 is used. The backup route is assigned an administrative distance of 254.

```
hostname(config)# sla monitor 123
hostname(config-sla-monitor)# type echo protocol ipIcmpEcho 10.1.1.1 interface outside
hostname(config-sla-monitor-echo)# timeout 1000
hostname(config-sla-monitor-echo)# frequency 3
```

```
hostname(config)# sla monitor schedule 123 life forever start-time now
hostname(config)# track 1 rtr 123 reachability
hostname(config)# interface GigabitEthernet0/2
hostname(config-if)# dhcp client route track 1
hostname(config-if)# ip address dhcp setroute
hostname(config)# interface GigabitEthernet0/3
hostname(config-if)# dhcp client route track 1
hostname(config-if)# dhcp client route distance 254
hostname(config-if)# ip address dhcp setroute
```

Related Commands

Command	Description
dhcp client route track	Associates routes learned through DHCP with a tracking entry object.
ip address dhcp	Configures the specified interface with an IP address obtained through DHCP.
sla monitor	Defines an SLA monitoring operation.
track rtr	Creates a tracking entry to poll the SLA.

dhcp client route track

To configure the DHCP client to associate added routes with a specified tracked object number, use the **dhcp client route track** command in interface configuration mode. To disable DHCP client route tracking, use the **no** form of this command.

dhcp client route track *number*

no dhcp client route track

Syntax Description

number	The tracking entry object ID. Valid values are from 1 to 500.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

The **dhcp client route track** command is checked only when a route is learned from DHCP. If the **dhcp client route track** command is entered after a route is learned from DHCP, the existing learned routes are not associated with a tracking object. You must put the following two commands in the correct order. Make sure that you always enter the **dhcp client route track** command first, followed by the **ip address dhcp setroute** command, If you have already entered the **ip address dhcp setroute** command, then remove it and reenter it in the order previously described. Only routes learned after the command was entered are associated with the specified tracking object.

You must specify the **setroute** option in the **ip address dhcp** command to obtain routes through DHCP.

If DHCP is configured on multiple interfaces, you must use the **dhcp client route distance** command on each of the interfaces to indicate the priority of the installed routes.

Examples

The following example obtains the default route through DHCP on GigabitEhternet0/2. The route is tracked by tracking entry object 1. The SLA operation monitors the availability of the 10.1.1.1 gateway off of the outside interface. If the SLA operation fails, then the backup route obtained through DHCP on GigabitEthernet0/3 is used. The backup route is assigned an administrative distance of 254.

```
hostname(config)# sla monitor 123
hostname(config-sla-monitor)# type echo protocol ipIcmpEcho 10.1.1.1 interface outside
```

```
hostname(config-sla-monitor-echo)# timeout 1000
hostname(config-sla-monitor-echo)# frequency 3
hostname(config)# sla monitor schedule 123 life forever start-time now
hostname(config)# track 1 rtr 123 reachability
hostname(config)# interface GigabitEthernet0/2
hostname(config-if)# dhcp client route track 1
hostname(config-if)# ip address dhcp setroute
hostname(config)# interface GigabitEthernet0/3
hostname(config-if)# dhcp client route distance 254
hostname(config-if)# ip address dhcp setroute
```

Related Commands

Command	Description
dhcp client route distance	Assigns an administrative distance to routes learned through DHCP.
ip address dhcp	Configures the specified interface with an IP address obtained through DHCP.
sla monitor	Defines an SLA monitoring operation.
track rtr	Creates a tracking entry to poll the SLA.

dhcp-client broadcast-flag

To allow the ASA to set the broadcast flag in the DHCP client packet, use the **dhcp-client broadcast-flag** command in global configuration mode. To disallow the broadcast flag, use the **no** form of this command.

dhcp-client broadcast-flag

no dhcp-client broadcast-flag

Syntax Description

This command has no arguments or keywords.

Defaults

By default, the broadcast flag is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

If you enable the DHCP client for an interface using the **ip address dhcp** command, then you can use this command to set the broadcast flag to 1 in the DHCP packet header when the DHCP client sends a discover requesting an IP address. The DHCP server listens to this broadcast flag and broadcasts the reply packet if the flag is set to 1.

If you enter the **no dhcp-client broadcast-flag** command, the broadcast flag is set to 0, and the DHCP server unicasts the reply packets to the client with the offered IP address.

The DHCP client can receive both broadcast and unicast offers from the DHCP server.

Examples

The following example enables the broadcast flag:

```
hostname(config)# dhcp-client broadcast-flag
```

Related Commands

Command	Description
ip address dhcp	Enables the DHCP client for an interface.
interface	Enters interface configuration mode so you can set the IP address.

dhcp-client client-id	Sets DHCP request packet option 61 to include the interface MAC address.
dhcp-client update dns	Enables DNS updates for the DHCP client.

dhcp-client client-id

To force a MAC address to be stored inside a DHCP request packet for option 61 instead of the default internally generated string, use the **dhcp-client client-id** command in global configuration mode. To disallow the MAC address, use the **no** form of this command.

dhcp-client client-id interface *interface_name*

no dhcp-client client-id interface *interface_name*

Syntax Description

interface *interface_name*	Specifies the interface on which you want to enable the MAC address for option 61.

Defaults

By default, an internally-generated ASCII string is used for option 61.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

If you enable the DHCP client for an interface using the **ip address dhcp** command, some ISPs expect option 61 to be the interface MAC address. If the MAC address is not included in the DHCP request packet, then an IP address will not be assigned. Use the **dhcp-client client-id** command to include the interface MAC address for option 61.

Examples

The following example enables the MAC address for option 61 for the outside interface:

```
hostname(config)# dhcp-client client-id interface outside
```

Related Commands

Command	Description
ip address dhcp	Enables the DHCP client for an interface.
interface	Enters interface configuration mode so you can set the IP address.

dhcp-client broadcast-flag	Sets the broadcast flag in the DHCP client packet.
dhcp-client update dns	Enables DNS updates for the DHCP client.

dhcp-client update dns

To configure the update parameters that the DHCP client passes to the DHCP server, use the **dhcp-client update dns** command in global configuration mode. To remove the parameters that the DHCP client passes to the DHCP server, use the **no** form of this command.

dhcp-client update dns [**server** {**both** | **none**}]

no dhcp-client update dns [**server** {**both** | **none**}]

Syntax Description

both	The client requests that the DHCP server update both the DNS A and PTR resource records.
none	The client requests that the DHCP server perform no DDNS updates.
server	Specifies the DHCP server to receive the client requests.

Defaults

By default, the ASA requests that the DHCP server perform PTR RR updates only. The client does not send the FQDN option to the server.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command can also be entered in interface configuration mode, but it is not hyphenated. See the **dhcp client update dns** command. When entered in interface mode, the **dhcp client update dns** command overrides settings configured by this command in global configuration mode.

Examples

The following example configures the client to request that the DHCP server update neither the A and the PTR RRs:

```
hostname(config)# dhcp-client update dns server none
```

The following example configures the client to request that the server update both the A and PTR RRs:

```
hostname(config)# dhcp-client update dns server both
```

Related Commands

Command	Description
ddns	Specifies a DDNS update method type for a created DDNS method.
ddns update	Associates a DDNS update method with a ASA interface or a DDNS update hostname.
ddns update method	Creates a method for dynamically updating DNS resource records.
dhcpd update dns	Enables a DHCP server to perform DDNS updates.
interval maximum	Configures the maximum interval between update attempts by a DDNS update method.

dhcp-network-scope

To specify the range of IP addresses the ASA DHCP server should use to assign addresses to users of this group policy, use the **dhcp-network-scope** command in group-policy configuration mode. To remove the attribute from the running configuration, use the **no** form of this command.

dhcp-network-scope {*ip_address*} | **none**

no dhcp-network-scope

Syntax Description

ip_address	Specifies the IP subnetwork the DHCP server should use to assign IP addresses to users of this group policy.
none	Sets the DHCP subnetwork to a null value, thereby allowing no IP addresses. Prevents inheriting a value from a default or specified group policy.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command allows inheritance of a value from another group policy. To prevent inheriting a value, use the **dhcp-network-scope none** command.

Examples

The following example shows how to set an IP subnetwork of 10.10.85.1 for the group policy named First Group:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# dhcp-network-scope 10.10.85.1
```

dhcp-server

To configure support for DHCP servers that assign IP addresses to clients as a VPN tunnel is established, use the **dhcp-server** command in tunnel-group general-attributes configuration mode. To return this command to the default, use the **no** form of this command.

dhcp-server [**link-selection** | **subnet-selection**] **ip1** [**ip2-ip10**]

[**no**] **dhcp-server** [**link-selection** | **subnet-selection**] **ip1** [**ip2-ip10**]

Syntax Description

ip1	Address of a DHCP server
ip2-ip10	(Optional) Addresses of additional DHCP servers. Up to ten may be specified in the same command or spread over multiple commands.
link-selection	(Optional) Specifies that the ASA should send DHCP suboption 5, the Link Selection Suboption for the Relay Information Option 82, defined by RFC 3527. This should only be used with servers that support this RFC.
subnet-selection	(Optional) Specifies that the ASA should send DHCP Option 118, the IPv4 Subnet Selection Option, defined by RFC 3011. This should only be used with servers that support this RFC.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Tunnel-group general attributes configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.0(5)	Added the **link-selection** and **subnet-selection** keywords.

Usage Guidelines

You can apply this attribute to remote access tunnel group types only.

Examples

The following command, entered in config-general configuration mode, adds three DHCP servers (dhcp1, dhcp2, and dhcp3) to the IPsec remote access tunnel group “remotegrp”:

```
hostname(config)# tunnel-group remotegrp type remote-access
hostname(config)# tunnel-group remotegrp general
hostname(config-tunnel-general)# default-group-policy remotegrp
```

```
hostname(config-tunnel-general)# dhcp-server dhcp1 dhcp2 dhcp3
hostname(config-tunnel-general)
```

Related Commands

Command	Description
clear-configure tunnel-group	Clears all configured tunnel groups.
show running-config tunnel group	Shows the tunnel group configuration for all tunnel groups or for a particular tunnel group.
tunnel-group general-attributes	Specifies the general attributes for the named tunnel group.

dhcpd address through distribute-list out Commands

dhcpd address

To define the IP address pool used by the DHCP server, use the **dhcpd address** command in global configuration mode. To remove an existing DHCP address pool, use the **no** form of this command.

dhcpd address *IP_address1*[*-IP_address2*] *interface_name*

no dhcpd address *interface_name*

Syntax Description

interface_name	Interface to which the address pool is assigned.
IP_address1	Start address of the DHCP address pool.
IP_address2	End address of the DHCP address pool.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The address pool of an ASA DHCP server must be within the same subnet of the ASA interface on which it is enabled, and you must specify the associated ASA interface using *interface_name*.

The size of the address pool is limited to 256 addresses per pool on the ASA. If the address pool range is larger than 253 addresses, the netmask of the ASA interface cannot be a Class C address (for example, 255.255.255.0) and needs to be something larger, for example, 255.255.254.0.

DHCP clients must be physically connected to the subnet of the ASA DCHP server interface.

The **dhcpd address** command cannot use interface names with a "-" (dash) character because this character is interpreted as a range specifier instead of as part of the object name.

The **no dhcpd address** *interface_name* command removes the DHCP server address pool that you configured for the specified interface.

See the CLI configuration guide for information about how to implement the DHCP server feature in the ASA.

Examples

The following example shows how to configure an address pool and DNS server for the DHCP clients on the DMZ interface of the ASA:

```
hostname(config)# dhcpd address 10.0.1.100-10.0.1.108 dmz
hostname(config)# dhcpd dns 209.165.200.226
hostname(config)# dhcpd enable dmz
```

The following example shows how to configure a DHCP server on the inside interface. The **dhcpd address** command assigns a pool of 10 IP addresses to the DHCP server on that interface.

```
hostname(config)# dhcpd address 10.0.1.101-10.0.1.110 inside
hostname(config)# dhcpd dns 198.162.1.2 198.162.1.3
hostname(config)# dhcpd wins 198.162.1.4
hostname(config)# dhcpd lease 3000
hostname(config)# dhcpd ping_timeout 1000
hostname(config)# dhcpd domain example.com
hostname(config)# dhcpd enable inside
```

Related Commands

Command	Description
clear configure dhcpd	Removes all DHCP server settings.
dhcpd enable	Enables the DHCP server on the specified interface.
show dhcpd	Displays DHCP binding, statistical, or state information.
show running-config dhcpd	Displays the current DHCP server configuration.

dhcpd auto_config

To enable the ASA to automatically configure DNS, WINS and domain name values for the DHCP server based on the values obtained from an interface running a DHCP or PPPoE client, or from a VPN server, use the **dhcpd auto_config** command in global configuration mode. To discontinue the automatic configuration of DHCP parameters, use the **no** form of this command.

dhcpd auto_config *client_if_name* [[**vpnclient-wins-override**] **interface** *if_name*]

no dhcpd auto_config *client_if_name* [[**vpnclient-wins-override**] **interface** *if_name*]

Syntax Description

client_if_name	Specifies the interface running the DHCP client that supplies the DNS, WINS, and domain name parameters.
interface *if_name*	Specifies the interface to which the action will apply.
vpnclient-wins-override	Overrides the interface DHCP or PPPoE client WINS parameter with the vpnclient parameter.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

If you specify DNS, WINS, or domain name parameters using the CLI commands, then the CLI-configured parameters overwrite the parameters obtained by automatic configuration.

Examples

The following example shows how to configure DHCP on the inside interface. The **dhcpd auto_config** command is used to pass DNS, WINS, and domain information obtained from the DHCP client on the outside interface to the DHCP clients on the inside interface.

```
hostname(config)# dhcpd address 10.0.1.101-10.0.1.110 inside
hostname(config)# dhcpd auto_config outside
hostname(config)# dhcpd enable inside
```

Related Commands

Command	Description
clear configure dhcpd	Removes all DHCP server settings.
dhcpd enable	Enables the DHCP server on the specified interface.
show ip address dhcp server	Displays detailed information about the DHCP options provided by a DHCP server to an interface acting as a DHCP client.
show running-config dhcpd	Displays the current DHCP server configuration.

dhcpd dns

To define the DNS servers for DHCP clients, use the **dhcpd dns** command in global configuration mode. To clear defined servers, use the **no** form of this command.

dhcpd dns *dnsip1* [*dnsip2*] [**interface** *if_name*]

no dhcpd dns *dnsip1* [*dnsip2*] [**interface** *if_name*]

Syntax Description

dnsip1	Specifies the IP address of the primary DNS server for the DHCP client.
dnsip2	(Optional) Specifies the IP address of the alternate DNS server for the DHCP client.
interface *if_name*	Specifies the interface to which values entered to the server apply. If no interface is specified, values are applied to all servers.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **dhcpd dns** command lets you specify the IP address or addresses of the DNS server(s) for the DHCP client. You can specify two DNS servers. The **no dhcpd dns** command lets you remove the DNS IP address(es) from the configuration.

Examples

The following example shows how to configure an address pool and DNS server for the DHCP clients on the DMZ interface of the ASA.

```
hostname(config)# dhcpd address 10.0.1.100-10.0.1.108 dmz
hostname(config)# dhcpd dns 192.168.1.2
hostname(config)# dhcpd enable dmz
```

Related Commands

Command	Description
clear configure dhcpd	Removes all DHCP server settings.
dhcpd address	Specifies the address pool used by the DHCP server on the specified interface.
dhcpd enable	Enables the DHCP server on the specified interface.
dhcpd wins	Defines the WINS servers for DHCP clients.
show running-config dhcpd	Displays the current DHCP server configuration.

dhcpd domain

To define the DNS domain name for DHCP clients, use the **dhcpd domain** command in global configuration mode. To clear the DNS domain name, use the **no** form of this command.

dhcpd domain *domain_name* [**interface** *if_name*]

no dhcpd domain [*domain_name*] [**interface** *if_name*]

Syntax Description

domain_name	Specifies the DNS domain name (example.com).
interface *if_name*	Specifies the interface to which values entered to the server apply. If no interface is specified, values are applied to all servers.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **dhcpd domain** command lets you specify the DNS domain name for the DHCP client. The **no dhcpd domain** command lets you remove the DNS domain server from the configuration.

Examples

The following example shows how to configure the domain name supplied to DHCP clients by the DHCP server on the ASA:

```
hostname(config)# dhcpd address 10.0.1.101-10.0.1.110 inside
hostname(config)# dhcpd dns 198.162.1.2 198.162.1.3
hostname(config)# dhcpd wins 198.162.1.4
hostname(config)# dhcpd lease 3000
hostname(config)# dhcpd ping_timeout 1000
hostname(config)# dhcpd domain example.com
hostname(config)# dhcpd enable inside
```

Related Commands

Command	Description
clear configure dhcpd	Removes all DHCP server settings.
show running-config dhcpd	Displays the current DHCP server configuration.

dhcpd enable

To enable the DHCP server, use the **dhcpd enable** command in global configuration mode. To disable the DHCP server, use the **no** form of this command.

dhcpd enable *interface*

no dhcpd enable *interface*

Syntax Description

interface	Specifies the interface on which to enable the DHCP server.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The DHCP server provides network configuration parameters to DHCP clients. Support for the DHCP server within the ASA means that the ASA can use DHCP to configure connected clients. The **dhcpd enable** *interface* command lets you enable the DHCP daemon to listen for the DHCP client requests on the DHCP-enabled interface. The **no dhcpd enable** command disables the DHCP server feature on the specified interface.

Note For multiple context mode, you cannot enable the DHCP server on an interface that is used by more than one context (a shared VLAN).

When the ASA responds to a DHCP client request, it uses the IP address and subnet mask of the interface at which the request was received as the IP address and subnet mask of the default gateway in the response.

Note The ASA DHCP server daemon does not support clients that are not directly connected to an ASA interface.

See the CLI configuration guide for information about how to implement the DHCP server feature in the ASA.

Examples

The following example shows how to enable the DHCP server on the inside interface:

```
hostname(config)# dhcpd address 10.0.1.101-10.0.1.110 inside
hostname(config)# dhcpd dns 198.162.1.2 198.162.1.3
hostname(config)# dhcpd wins 198.162.1.4
hostname(config)# dhcpd lease 3000
hostname(config)# dhcpd ping_timeout 1000
hostname(config)# dhcpd domain example.com
hostname(config)# dhcpd enable inside
```

Related Commands

Command	Description
debug dhcpd	Displays debugging information for the DHCP server.
dhcpd address	Specifies the address pool used by the DHCP server on the specified interface.
show dhcpd	Displays DHCP binding, statistical, or state information.
show running-config dhcpd	Displays the current DHCP server configuration.

dhcpd lease

To specify the DHCP lease length, use the **dhcpd lease** command in global configuration mode. To restore the default value for the lease, use the **no** form of this command.

dhcpd lease *lease_length* [**interface** *if_name*]

no dhcpd lease [*lease_length*] [**interface** *if_name*]

Syntax Description

interface *if_name*	Specifies the interface to which values entered to the server apply. If no interface is specified, values are applied to all servers.
lease_length	Specifies the length of the IP address lease, in seconds, granted to the DHCP client from the DHCP server. Valid values are from 300 to 1048575 seconds.

Defaults

The default *lease_length* is 3600 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **dhcpd lease** command lets you specify the length of the lease, in seconds, that is granted to the DHCP client. This lease indicates how long the DHCP client can use the assigned IP address that the DHCP server granted.

The **no dhcpd lease** command lets you remove the lease length that you specified from the configuration and replaces this value with the default value of 3600 seconds.

Examples

The following example shows how to specify the length of the lease of DHCP information for DHCP clients:

```
hostname(config)# dhcpd address 10.0.1.101-10.0.1.110 inside
hostname(config)# dhcpd dns 198.162.1.2 198.162.1.3
hostname(config)# dhcpd wins 198.162.1.4
hostname(config)# dhcpd lease 3000
hostname(config)# dhcpd ping_timeout 1000
hostname(config)# dhcpd domain example.com
hostname(config)# dhcpd enable inside
```

Related Commands

Command	Description
clear configure dhcpd	Removes all DHCP server settings.
show running-config dhcpd	Displays the current DHCP server configuration.

dhcpd option

To configure DHCP options, use the **dhcpd option** command in global configuration mode. To clear the option, use the **no** form of this command.

dhcpd option *code* {**ascii** *string*} | {**ip** *IP_address* [*IP_address*]} | {**hex** *hex_string*} [**interface** *if_name*]

no dhcpd option *code* [**interface** *if_name*]

Syntax Description

ascii *string*	Specifies that the option parameter is an ASCII character string without spaces.
code	Specifies anumber representing the DHCP option being set. Valid values are 0 to 255 with several exceptions. See the Usage Guidelines section for the list of DHCP option codes that are not supported.
hex *hex_string*	Specifies that the option parameter is a hexadecimal string with an even number of digits and no spaces. You do not need to use a 0x prefix.
interface *if_name*	Specifies the interface to which values entered to the server apply. If no interface is specified, values are applied to all servers.
ip	Specifies that the option parameter is an IP address. You can specify a maximum of two IP addresses with the **ip** keyword.
IP_address	Specifies a dotted-decimal IP address.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You can use the **dhcpd option** command to provide TFTP server information to Cisco IP Phones and routers.

When a DHCP option request arrives at the ASA DHCP server, the ASA places the value or values that are specified by the **dhcpd option** command in the response to the client.

The **dhcpd option 66** and **dhcpd option 150** commands specify TFTP servers that Cisco IP Phones and routers can use to download configuration files. Use these commands as follows:

- **dhcpd option 66 ascii** *string*, where *string* is either the IP address or hostname of the TFTP server. Only one TFTP server can be specified for option 66.
- **dhcpd option 150 ip** *IP_address* [*IP_address*], where *IP_address* is the IP address of the TFTP server. You can specify a maximum of two IP addresses for option 150.

Note The **dhcpd option 66** command only takes an **ascii** parameter, and the **dhcpd option 150** only takes an **ip** parameter.

Use the following guidelines when specifying an IP address for the **dhcpd option 66 | 150** commands:

- If the TFTP server is located on the DHCP server interface, use the local IP address of the TFTP server.
- If the TFTP server is located on a less secure interface than the DHCP server interface, then general outbound rules apply. Create a group of NAT, global, and access list entries for the DHCP clients, and use the actual IP address of the TFTP server.
- If the TFTP server is located on a more secure interface, then general inbound rules apply. Create a group of static and access list statements for the TFTP server and use the global IP address of the TFTP server.

For information about other DHCP options, see RFC 2132.

Note The ASA does not verify that the option type and value that you provide match the expected type and value for the option code as defined in RFC 2132. For example, you can enter the **dhcpd option 46 ascii hello** command, and the ASA accepts the configuration although option 46 is defined in RFC 2132 as a single-digit, hexadecimal value.

You cannot configure the following DHCP options with the **dhcpd option** command:

Option Code	Description
0	DHCPOPT_PAD
1	HCPOPT_SUBNET_MASK
12	DHCPOPT_HOST_NAME
50	DHCPOPT_REQUESTED_ADDRESS
51	DHCPOPT_LEASE_TIME
52	DHCPOPT_OPTION_OVERLOAD
53	DHCPOPT_MESSAGE_TYPE
54	DHCPOPT_SERVER_IDENTIFIER
58	DHCPOPT_RENEWAL_TIME
59	DHCPOPT_REBINDING_TIME
61	DHCPOPT_CLIENT_IDENTIFIER
67	DHCPOPT_BOOT_FILE_NAME

Option Code	Description
82	DHCPOPT_RELAY_INFORMATION
255	DHCPOPT_END

Examples

The following example shows how to specify a TFTP server for DHCP option 66:

```
hostname(config)# dhcpd option 66 ascii MyTftpServer
```

Related Commands

Command	Description
clear configure dhcpd	Removes all DHCP server settings.
show running-config dhcpd	Displays the current DHCP server configuration.

dhcpd ping_timeout

To change the default timeout for DHCP ping, use the **dhcpd ping_timeout** command in global configuration mode. To return to the default value, use the **no** form of this command.

dhcpd ping_timeout *number* [**interface** *if_name*]

no dhcpd ping_timeout [**interface** *if_name*]

Syntax Description

interface *if_name*	Specifies the interface to which values entered to the server apply. If no interface is specified, values are applied to all servers.
number	The timeout value of the ping, in milliseconds. The minimum value is 10, the maximum is 10000. The default is 50.

Defaults

The default number of milliseconds for *number* is 50.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To avoid address conflicts, the DHCP server sends two ICMP ping packets to an address before assigning that address to a DHCP client. The ASA waits for both ICMP ping packets to time out before assigning an IP address to a DHCP client. For example, if the default value is used, the ASA waits for 1500 milliseconds (750 milliseconds for each ICMP ping packet) before assigning an IP address.

A long ping timeout value can adversely affect the performance of the DHCP server.

Examples

The following example shows how to use the **dhcpd ping_timeout** command to change the ping timeout value for the DHCP server:

```
hostname(config)# dhcpd address 10.0.1.101-10.0.1.110 inside
hostname(config)# dhcpd dns 198.162.1.2 198.162.1.3
hostname(config)# dhcpd wins 198.162.1.4
hostname(config)# dhcpd lease 3000
hostname(config)# dhcpd ping_timeout 1000
hostname(config)# dhcpd domain example.com
hostname(config)# dhcpd enable inside
```

Related Commands

Command	Description
clear configure dhcpd	Removes all DHCP server settings.
show running-config dhcpd	Displays the current DHCP server configuration.

dhcpd update dns

To enable a DHCP server to perform DDNS updates, use the **dhcpd update dns** command in global configuration mode. To disable DDNS by a DHCP server, use the **no** form of this command.

dhcpd update dns [**both**] [**override**] [**interface** *srv_ifc_name*]

no dhcpd update dns [**both**] [**override**] [**interface** *srv_ifc_name*]

Syntax Description

both	Specifies that the DHCP server updates both A and PTR DNS RRs.
interface	Specifies the ASA interface to which the DDNS updates apply.
override	Specifies that the DHCP server overrides DHCP client requests.
srv_ifc_name	Specifies an interface to apply this option to.

Defaults

By default, the DHCP server performs PTR RR updates only.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

DDNS updates the name-to-address and address-to-name mapping maintained by DNS. Updates are performed in conjunction with a DHCP server. The **dhcpd update dns** command enables updates by the server.

Name and address mapping is contained in two types of RRs:

- The A resource record contains domain name-to IP-address mapping.
- The PTR resource record contains IP addres- to-domain name mapping.

DDNS updates can be used to maintain consistent information between the A and PTR RR types.

Using the **dhcpd update dns** command, the DHCP server can be configured to perform both A and PRT RR updates or PTR RR updates only. It can also be configured to override update requests from the DHCP client.

Examples

The following example configures the DDNS server to perform both A and PTR updates and override requests from the DHCP client:

```
hostname(config)# dhcpd update dns both override
```

Related Commands

Command	Description
ddns	Specifies a DDNS update method type for a created DDNS method.
ddns update	Associates a DDNS update method with an ASA interface or a DDNS update hostname.
ddns update method	Creates a method for dynamically updating DNS resource records.
dhcp-client update dns	Configures the update parameters that the DHCP client passes to the DHCP server.
interval maximum	Configures the maximum interval between update attempts by a DDNS update method.

dhcpd wins

To define the WINS server IP addresses for DHCP clients, use the **dhcpd wins** command in global configuration mode. To remove the WINS server IP addresses from the configuration, use the **no** form of this command.

dhcpd wins *server1* [*server2*] [**interface** *if_name*]

no dhcpd wins [*server1* [*server2*]] [**interface** *if_name*]

Syntax Description

interface *if_name*	Specifies the interface to which values entered to the server apply. If no interface is specified, values are applied to all servers.
server1	Specifies the IP address of the primary Microsoft NetBIOS name server (WINS server).
server2	(Optional) Specifies the IP address of the alternate Microsoft NetBIOS name server (WINS server).

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **dhcpd wins** command lets you specify the addresses of the WINS servers for the DHCP client. The **no dhcpd wins** command removes the WINS server IP addresses from the configuration.

Examples

The following example shows how to specify WINS server information that is sent to DHCP clients:

```
hostname(config)# dhcpd address 10.0.1.101-10.0.1.110 inside
hostname(config)# dhcpd dns 198.162.1.2 198.162.1.3
hostname(config)# dhcpd wins 198.162.1.4
hostname(config)# dhcpd lease 3000
hostname(config)# dhcpd ping_timeout 1000
hostname(config)# dhcpd domain example.com
hostname(config)# dhcpd enable inside
```

Related Commands

Command	Description
clear configure dhcpd	Removes all DHCP server settings.
dhcpd address	Specifies the address pool used by the DHCP server on the specified interface.
dhcpd dns	Defines the DNS servers for DHCP clients.
show dhcpd	Displays DHCP binding, statistical, or state information.
show running-config dhcpd	Displays the current DHCP server configuration.

dhcprelay enable

To enable the DHCP relay agent, use the **dhcprelay enable** command in global configuration mode. To disable the DHCP relay agent, use the **no** form of this command.

dhcprelay enable *interface_name*

no dhcprelay enable *interface_name*

Syntax Description

interface_name	Name of the interface on which the DHCP relay agent accepts client requests.

Defaults

The DHCP relay agent is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The DHCP relay agent allows DHCP requests to be forwarded from a specified ASA interface to a specified DHCP server.

For the ASA to start the DHCP relay agent with the **dhcprelay enable** *interface_name* command, you must have a **dhcprelay server** command already in the configuration. Otherwise, the ASA displays an error message similar to the following:

```
DHCPRA: Warning - There are no DHCP servers configured!
        No relaying can be done without a server!
        Use the 'dhcprelay server <server_ip> <server_interface>' command
```

You cannot enable DHCP relay under the following conditions:

- You cannot enable DHCP relay and the DHCP relay server on the same interface.
- You cannot enable DCHP relay and a DHCP server (**dhcpd enable**) on the same interface.
- The DHCP relay agent cannot be enabled if the DHCP server is also enabled.
- For multiple context mode, you cannot enable DHCP relay on an interface that is used by more than one context (a shared VLAN).

The **no dhcprelay enable** *interface_name* command removes the DHCP relay agent configuration for the interface that is specified by the *interface_name* argument only.

Examples

The following example shows how to configure the DHCP relay agent for a DHCP server with an IP address of 10.1.1.1 on the outside interface of the ASA, client requests on the inside interface of the ASA, and a timeout value up to 90 seconds:

```
hostname(config)# dhcprelay server 10.1.1.1 outside
hostname(config)# dhcprelay timeout 90
hostname(config)# dhcprelay enable inside
hostname(config)# show running-config dhcprelay
dhcprelay server 10.1.1.1 outside
dhcprelay enable inside
dhcprelay timeout 90
```

The following example shows how to disable the DHCP relay agent:

```
hostname(config)# no dhcprelay enable inside
hostname(config)# show running-config dhcprelay
dhcprelay server 10.1.1.1 outside
dhcprelay timeout 90
```

Related Commands

Command	Description
clear configure dhcprelay	Removes all DHCP relay agent settings.
debug dhcp relay	Displays debugging information for the DHCP relay agent.
dhcprelay server	Specifies the DHCP server to which the DHCP relay agent forwards DHCP requests.
dhcprelay setroute	Defines IP address that the DHCP relay agent uses as the default router address in DHCP replies.
show running-config dhcprelay	Displays the current DHCP relay agent configuration.

dhcprelay information trust-all

To configure a specified interface as trusted, use the **dhcprelay information trust-all** command in global configuration mode.

dhcprelay information trust-all

Syntax Description

This command has no arguments or keywords.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
9.1(2)	This command was introduced.

Usage Guidelines

This command configures a given interface as trusted. To view the interface-specific trusted configuration, use the **show running-config dhcprelay interface** command in interface configuration mode. To configure a given interface as trusted in interface configuration mode, use the **dhcprelay information trusted** command. To view a given interface as trusted in global configuration mode, use the **show running-config dhcprelay** command.

Examples

The following example shows how to configure a specified interface as trusted in global configuration mode:

```
hostname(config-if)# interface vlan501
hostname(config-if)# nameif inside
hostname(config)# dhcprelay information trust-all
hostname(config)# show running-config dhcprelay
dhcprelay information trust-all
```

Related Commands

Command	Description
clear configure dhcprelay	Removes all DHCP relay agent settings.
dhcprelay enable	Enables the DHCP relay agent on the specified interface.

Command	Description
dhcprelay setroute	Defines IP address that the DHCP relay agent uses as the default router address in DHCP replies.
dhcprelay timeout	Specifies the timeout value for the DHCP relay agent.
show running-config dhcprelay	Displays the current DHCP relay agent configuration.

dhcprelay information trusted

To configure a specified interface as trusted, use the **dhcprelay information trusted** command in interface configuration mode.

dhcprelay information trusted

Syntax Description

This command has no arguments or keywords.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	•	—

Command History

Release	Modification
9.1(2)	This command was introduced.

Usage Guidelines

This command configures a given interface as trusted. To view the interface-specific trusted configuration, use the **show running-config dhcprelay interface** command in interface configuration mode. To configure a given interface as trusted in global configuration mode, use the **dhcprelay information trust-all** command. To view a given interface as trusted in global configuration mode, use the **show running-config dhcprelay** command.

Examples

The following example shows how to configure a specified interface as trusted:

```
hostname(config-if)# interface gigabitEthernet 0/0
hostname(config-if)# nameif inside
hostname(config-if)# dhcprelay information trusted
hostname(config)# show running-config dhcprelay
interface gigabitEthernet 0/0
nameif inside
dhcprelay information trusted
```

Related Commands

Command	Description
clear configure dhcprelay	Removes all DHCP relay agent settings.
dhcprelay enable	Enables the DHCP relay agent on the specified interface.
dhcprelay setroute	Defines IP address that the DHCP relay agent uses as the default router address in DHCP replies.
dhcprelay timeout	Specifies the timeout value for the DHCP relay agent.
show running-config dhcprelay	Displays the current DHCP relay agent configuration.

dhcprelay server (global)

To specify the DHCP server to which DHCP requests are forwarded, use the **dhcpreplay server** command in global configuration mode. To remove the DHCP server from the DHCP relay configuration, use the **no** form of this command.

dhcprelay server [*interface_name*]

no dhcprelay server [*interface_name*]

Syntax Description

interface_name	Specifies the name of the ASA interface on which the DHCP server resides.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The DHCP relay agent allows DHCP requests to be forwarded from a specified ASA interface to a specified DHCP server. You can add up to ten DHCP relay servers per interface. You must add at least one **dhcprelay server** command to the ASA configuration before you can enter the **dhcprelay enable** command. You cannot configure a DHCP client on an interface that has a DHCP relay server configured.

The **dhcprelay server** command opens UDP port 67 on the specified interface and starts the DHCP relay task as soon as the **dhcprelay enable** command is added to the configuration.

Examples

The following example shows how to configure the DHCP relay agent for a DHCP server with an IP address of 10.1.1.1 on the outside interface of the ASA, client requests on the inside interface of the ASA, and a timeout value of up to 90 seconds:

```
hostname(config)# dhcprelay server 10.1.1.1 outside
hostname(config)# dhcprelay timeout 90
hostname(config)# dhcprelay enable inside
hostname(config)# show running-config dhcprelay
dhcprelay server 10.1.1.1 outside
dhcprelay enable inside
dhcprelay timeout 90
```

Related Commands

Command	Description
clear configure dhcprelay	Removes all DHCP relay agent settings.
dhcprelay enable	Enables the DHCP relay agent on the specified interface.
dhcprelay setroute	Defines IP address that the DHCP relay agent uses as the default router address in DHCP replies.
dhcprelay timeout	Specifies the timeout value for the DHCP relay agent.
show running-config dhcprelay	Displays the current DHCP relay agent configuration.

dhcprelay server (interface) (9.1(2) and later)

To specify the DHCP relay interface server to which DHCP requests are forwarded, use the **dhcpreplay server** command in interface configuration mode. To remove the DHCP relay interface server from the DHCP relay configuration, use the **no** form of this command.

dhcprelay server *ip_address*

no dhcprelay server *ip_address*

Syntax Description

ip_address	Specifies the IP address of the DHCP relay interface server to which the DHCP relay agent forwards client DHCP requests.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	•	—

Command History

Release	Modification
9.1(2)	This command was introduced.

Usage Guidelines

The DHCP relay agent allows DHCP requests to be forwarded from a specified ASA interface to a specified DHCP server. You can add up to four DHCP relay servers per interface. You must add at least one **dhcprelay server** command to the ASA configuration before you can enter the **dhcprelay enable** command. You cannot configure a DHCP client on an interface that has a DHCP relay server configured.

The **dhcprelay server** command opens UDP port 67 on the specified interface and starts the DHCP relay task as soon as the **dhcprelay enable** command is added to the configuration.

In the interface configuration mode, you can use the **dhcprelay server** *ip_address* command to configure a DHCP relay server (called a helper) address on a per-interface basis. This means that when a DHCP request is received on an interface and it has helper addresses configured, then the request is forwarded to only those servers.

When you use the **no dhcprelay server** *ip_address* command, the interface stops forwarding DHCP packets to that server and removes the DHCP relay agent configuration for the DHCP server that is specified by the *ip_address* argument only.

This command takes precedence over a DHCP relay server that has been configured in global configuration mode. This means that the DHCP relay agent forwards the client discovery message first to the DHCP relay interface server, then to the DHCP global relay server.

Examples

The following example shows how to configure the DHCP relay agent for a DHCP relay interface server with an IP address of 10.1.1.1 on the outside interface of the ASA, client requests on the inside interface of the ASA, and a timeout value of up to 90 seconds:

```
hostname(config)# interface vlan 10
hostname(config-if)# nameif inside
hostname(config-if)# dhcprelay server 10.1.1.1
hostname(config-if)# exit
hostname(config)# dhcprelay timeout 90
hostname(config)# dhcprelay enable inside
hostname(config)# show running-config dhcprelay
dhcprelay enable inside
dhcprelay timeout 90

interface vlan 10
nameif inside
dhcprelay server 10.1.1.1
```

Related Commands

Command	Description
clear configure dhcprelay	Removes all DHCP relay agent settings.
dhcprelay enable	Enables the DHCP relay agent on the specified interface.
dhcprelay setroute	Defines IP address that the DHCP relay agent uses as the default router address in DHCP replies.
dhcprelay timeout	Specifies the timeout value for the DHCP relay agent.
show running-config dhcprelay	Displays the current DHCP relay agent configuration.

dhcprelay setroute

To set the default gateway address in the DHCP reply, use the **dhcprelay setroute** command in global configuration mode. To remove the default router, use the **no** form of this command.

dhcprelay setroute *interface*

no dhcprelay setroute *interface*

Syntax Description

interface	Configures the DHCP relay agent to change the first default IP address (in the packet sent from the DHCP server) to the address of *interface*.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command causes the default IP address of the DHCP reply to be substituted with the address of the specified ASA interface. The **dhcprelay setroute** *interface* command lets you enable the DHCP relay agent to change the first default router address (in the packet sent from the DHCP server) to the address of *interface*.

If there is no default router option in the packet, the ASA adds one containing the address of *interface*. This action allows the client to set its default route to point to the ASA.

When you do not configure the **dhcprelay setroute** *interface* command (and there is a default router option in the packet), it passes through the ASA with the router address unaltered.

Examples

The following example shows how to set the default gateway in the DHCP reply from the external DHCP server to the inside interface of the ASA:

```
hostname(config)# dhcprelay server 10.1.1.1 outside
hostname(config)# dhcprelay timeout 90
hostname(config)# dhcprelay setroute inside
hostname(config)# dhcprelay enable inside
```

Related Commands

Command	Description
clear configure dhcprelay	Removes all DHCP relay agent settings.
dhcprelay enable	Enables the DHCP relay agent on the specified interface.
dhcprelay server	Specifies the DHCP server that the DHCP relay agent forwards DHCP requests to.
dhcprelay timeout	Specifies the timeout value for the DHCP relay agent.
show running-config dhcprelay	Displays the current DHCP relay agent configuration.

dhcprelay timeout

To set the DHCP relay agent timeout value, use the **dhcprelay timeout** command in global configuration mode. To restore the timeout value to its default value, use the **no** form of this command.

dhcprelay timeout *seconds*

no dhcprelay timeout

Syntax Description

seconds	Specifies the number of seconds that are allowed for DHCP relay address negotiation.

Defaults

The default value for the DHCP relay timeout is 60 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **dhcprelay timeout** command lets you set the amount of time, in seconds, allowed for responses from the DHCP server to pass to the DHCP client through the relay binding structure.

Examples

The following example shows how to configure the DHCP relay agent for a DHCP server with an IP address of 10.1.1.1 on the outside interface of the ASA, client requests on the inside interface of the ASA, and a timeout value up to 90 seconds:

```
hostname(config)# dhcprelay server 10.1.1.1 outside
hostname(config)# dhcprelay timeout 90
hostname(config)# dhcprelay enable inside
hostname(config)# show running-config dhcprelay
dhcprelay server 10.1.1.1 outside
dhcprelay enable inside
dhcprelay timeout 90
```

Related Commands

Command	Description
clear configure dhcprelay	Removes all DHCP relay agent settings.
dhcprelay enable	Enables the DHCP relay agent on the specified interface.
dhcprelay server	Specifies the DHCP server to which the DHCP relay agent forwards DHCP requests.
dhcprelay setroute	Defines IP address that the DHCP relay agent uses as the default router address in DHCP replies.
show running-config dhcprelay	Displays the current DHCP relay agent configuration.

dialog

To customize dialog box messages displayed to WebVPN users, use the **dialog** command in webvpn customization configuration mode. To remove the command from the configuration and cause the value to be inherited, use the **no** form of this command.

dialog {**title** | **message** | **border**} **style** *value*

no dialog {**title** | **message** | **border**} **style** *value*

Syntax Description

border	Specifies a change to the border.
message	Specifies a change to the message.
style	Specifies a change to the style.
title	Specifies a change to the title.
value	The actual text or or CSS parameters to display (the maximum is 256 characters).

Defaults

The default title style is background-color:#669999;color:white.

The default message style is background-color:#99CCCC;color:black.

The default border style is border:1px solid black;border-collapse:collapse.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Webvpn customization configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

The **style** option is expressed as any valid CSS parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium website at www.w3.org. Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at www.w3.org/TR/CSS21/propidx.html.

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.
- The RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma-separated entry indicates the level of intensity of each color to combine with the others.

- The HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.

Note To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

Examples

The following example customizes the dialog box message, changing the foreground color to blue:

```
hostname(config)# webvpn
hostname(config-webvpn)# customization cisco
hostname(config-webvpn-custom)# dialog message style color:blue
```

Related Commands

Command	Description
application-access	Customizes the Application Access box of the WebVPN Home page.
browse-networks	Customizes the Browse Networks box of the WebVPN Home page.
web-bookmarks	Customizes the Web Bookmarks title or links on the WebVPN Home page.
file-bookmarks	Customizes the File Bookmarks title or links on the WebVPN Home page.

dir

To display the directory contents, use the **dir** command in privileged EXEC mode.

dir [/all] [all-filesystems] [/recursive] [disk0: | disk1: | flash: | system:] [*path]*

Syntax Description

/all	(Optional) Displays all files.
/recursive	(Optional) Displays the directory contents recursively.
all-filesystems	(Optional) Displays the files of all filesystems.
disk0:	(Optional) Specifies the internal flash memory, followed by a colon.
disk1:	(Optional) Specifies the external flash memory card, followed by a colon.
flash:	(Optional) Displays the directory contents of the default flash partition.
path	(Optional) Specifies a specific path.
system:	(Optional) Displays the directory contents of the file system.

Defaults

If you do not specify a directory, the directory is the current working directory by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **dir** command without keywords or arguments displays the directory contents of the current directory.

Examples

The following example shows how to display the directory contents:

```
hostname# dir
Directory of disk0:/

1      -rw-  1519        10:03:50 Jul 14 2003    my_context.cfg
2      -rw-  1516        10:04:02 Jul 14 2003    my_context.cfg
3      -rw-  1516        10:01:34 Jul 14 2003    admin.cfg
60985344 bytes total (60973056 bytes free)
```

The following example shows how to display recursively the contents of the entire file system:

```
hostname# dir /recursive disk0:
Directory of disk0:/*
1      -rw-  1519        10:03:50 Jul 14 2003    my_context.cfg
2      -rw-  1516        10:04:02 Jul 14 2003    my_context.cfg
3      -rw-  1516        10:01:34 Jul 14 2003    admin.cfg
60985344 bytes total (60973056 bytes free)
```

The following example shows how to display the contents of the flash partition:

```
hostname# dir flash:
Directory of disk0:/*
1      -rw-  1519        10:03:50 Jul 14 2003    my_context.cfg
2      -rw-  1516        10:04:02 Jul 14 2003    my_context.cfg
3      -rw-  1516        10:01:34 Jul 14 2003    admin.cfg
60985344 bytes total (60973056 bytes free)
```

Related Commands

Command	Description
cd	Changes the current working directory to the one specified.
pwd	Displays the current working directory.
mkdir	Creates a directory.
rmdir	Removes a directory.

disable

To exit privileged EXEC mode and return to unprivileged EXEC mode, use the **disable** command in privileged EXEC mode.

disable

Syntax Description

This command has no arguments or keywords.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Use the **enable** command to enter privileged mode. The **disable** command allows you to exit privileged mode and returns you to an unprivileged mode.

Examples

The following example shows how to enter privileged mode:

```
hostname> enable
hostname#
```

The following example shows how to exit privileged mode:

```
hostname# disable
hostname>
```

Related Commands

Command	Description
enable	Enables privileged EXEC mode.

disable (cache)

To disable caching for WebVPN, use the **disable** command in cache configuration mode. To reenable caching, use the **no** version of this command.

disable

no disable

Defaults

Caching is enabled with default settings for each cache attribute.

Command Modes

The following table shows the modes in which you enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Cache configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

Caching stores frequently reused objects in the system cache, which reduces the need to perform repeated rewriting and compressing of content. It reduces traffic between WebVPN and both the remote servers and end-user browsers, with the result that many applications run much more efficiently.

Examples

The following example shows how to disable caching, and then how to reenable it.

```
hostname(config)# webvpn
hostname(config-webvpn)# cache
hostname(config-webvpn-cache)# disable
hostname(config-webvpn-cache)# no disable
hostname(config-webvpn-cache)#
```

Related Commands

Command	Description
cache	Enters webvpn cache configuration mode.
cache-compressed	Configures WebVPN cache compression.
expiry-time	Configures the expiration time for caching objects without revalidating them.
lmfactor	Sets a revalidation policy for caching objects that have only the last-modified timestamp.

Command	Description
max-object-size	Defines the maximum size of an object to cache.
min-object-size	Defines the minimum sizze of an object to cache.

disable service-settings

To disable the service settings on IP phones when using the Phone Proxy feature, use the **disable service-settings** command in phone-proxy configuration mode. To preserve the settings on the IP phones, use the **no** form of this command.

disable service-settings

no disable service-settings

Syntax Description

There are no arguments or keywords for this command.

Defaults

The service settings are disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Phone-proxy configuration	•	—	•	—	—

Command History

Release	Modification
8.0(4)	This command was introduced.

Usage Guidelines

By default, the following settings are disabled on the IP phones:

- PC Port
- Gratuitous ARP
- Voice VLAN access
- Web Access
- Span to PC Port

To preserve the settings configured on the CUCM for each IP phone configured, configure the **no disable service-settings** command.

Examples

The following example shows how to preserve the settings of the IP phones that use the Phone Proxy feature on the ASA:

```
hostname(config-phone-proxy)# no disable service-settings
```

Related Commands

Command	Description
phone-proxy	Configures the Phone Proxy instance.
show phone-proxy	Displays Phone Proxy specific information.

display

To display attribute value pairs that the ASA writes to the DAP attribute database, enter the **display** command in dap test attributes mode.

display

Command Default

No default value or behaviors.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Dap test attributes	•	•	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Normally the ASA retrieves user authorization attributes from the AAA server and retrieves endpoint attributes from Cisco Secure Desktop, Host Scan, CNA or NAC. For the test command, you specify the user authorization and endpoint attributes in this attributes mode. The ASA writes them to an attribute database that the DAP subsystem references when evaluating the AAA selection attributes and endpoint select attributes for a DAP record. The **display** command lets you display these attributes to the console.

Related Commandsl

Command	Description
attributes	Enters attributes configuration mode, in which you can set attribute value pairs.
dynamic-access-policy-record	Creates a DAP record.
test dynamic-access-policy attributes	Enters attributes submode.
test dynamic-access-policy execute	Executes the logic that generates DAP and displays the resulting access policies to the console.

distance eigrp

To configure the administrative distances of internal and external EIGRP routes, use the **distance eigrp** command in router configuration mode. To restore the default values, use the **no** form of this command.

distance eigrp *internal-distance external-distance*

no distance eigrp

Syntax Description

external-distance	Administrative distance for EIGRP external routes. External routes are those for which the best path is learned from a neighbor external to the autonomous system. Valid values are from 1 to 255.
internal-distance	Administrative distance for EIGRP internal routes. Internal routes are those that are learned from another entity within the same autonomous system. Valid values are from 1 to 255.

Defaults

The default values are as follows:

- *external-distance* is 170
- *internal-distance* is 90

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

Because every routing protocol has metrics based on algorithms that are different from the other routing protocols, it is not always possible to determine the “best path” for two routes to the same destination that were generated by different routing protocols. Administrative distance is a route parameter that the ASA uses to select the best path when there are two or more different routes to the same destination from two different routing protocols.

If you have more than one routing protocol running on the ASA, you can use the **distance eigrp** command to adjust the default administrative distances of routes discovered by the EIGRP routing protocol in relation to the other routing protocols. Table 18-1 lists the default administrative distances for the routing protocols supported by the ASA.

Table 18-1 Default Administrative Distances

Route Source	Default Administrative Distance
Connected interface	0
Static route	1
EIGRP summary route	5
Internal EIGRP	90
OSPF	110
RIP	120
EIGRP external route	170
Unknown	255

The **no** form of the command does not take any keywords or arguments. Using the **no** form of the command restores the default administrative distance for both internal and external EIGRP routes.

Examples

The following example uses the **distance eigrp** command to set the administrative distance of all EIGRP internal routes to 80 and all EIGRP external routes to 115. Setting the EIGRP external route administrative distance to 115 would give routes discovered by EIGRP to a specific destination preference over the same routes discovered by RIP but not by OSPF.

```
hostname(config)# router eigrp 100
hostname(config-router)# network 192.168.7.0
hostname(config-router)# network 172.16.0.0
hostname(config-router)# distance eigrp 90 115
```

Related Commands

Command	Description
router eigrp	Creates an EIGRP routing process and enters configuration mode for that process.

distance (OSPFv3)

To define OSPFv3 route administrative distances based on route type, use the **distance** command in IPv6 router configuration mode. To restore the default values, use the **no** form of this command.

distance [**ospf** {**external | intra-area | inter-area**}] *distance*

no distance [**ospf** {**external | intra-area | inter-area**}] *distance*

Syntax Description

distance	Specifies the administrative distance. Valid values range from 10 to 254.
external	(Optional) Specifies external type 5 and type 7 routes for OSPFv3 routes.
inter-area	(Optional) Specifies the inter-area routes for OSPFv3 routes.
intra-area	(Optional) Specifies the intra-area routes for OSPFv3 routes.
ospf	(Optional) Specifies the administrative distance for OSPFv3 routes.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
IPv6 router configuration	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Use this command to set the administrative distance for OSPFv3 routes.

Examples

The following example sets the administrative distance for external type 5 and type 7 routes for OSPFv3 to 200:

```
hostname(config-if)# ipv6 router ospf
hostname(config-router)# distance ospf external 200
```

Related Commands

Command	Description
default-information originate	Generates a default external route into an OSPFv3 routing domain.
redistribute	Redistributes IPv6 routes from one routing domain into another routing domain.

distance ospf (OSPFv2)

To define OSPFv2 route administrative distances based on route type, use the **distance ospf** command in router configuration mode. To restore the default values, use the **no** form of this command.

distance ospf [**intra-area** *d1*] [**inter-area** *d2*] [**external** *d3*]

no distance ospf

Syntax Description

d1, *d2*, and *d3*	Specifies the distance for each route type. Valid values range from 1 to 255.
external	(Optional) Sets the distance for routes from other routing domains that are learned by redistribution.
inter-area	(Optional) Sets the distance for all routes from one area to another area.
intra-area	(Optional) Sets the distance for all routes within an area.

Defaults

The default values for *d1*, *d2*, and *d3* are 110.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You must specify at least one keyword and argument. You can enter the commands for each type of administrative distance separately, however they appear as a single command in the configuration. If you reenter an administrative distance, the administrative distance for only that route type changes; the administrative distances for any other route types remain unaffected.

The **no** form of the command does not take any keywords or arguments. Using the **no** form of the command restores the default administrative distance for all of the route types. If you want to restore the default administrative distance for a single route type when you have multiple route types configured, you can do one of the following:

- Manually set that route type to the default value.
- Use the **no** form of the command to remove the entire configuration and then reenter the configurations for the route types that you want to keep.

Examples

The following example sets the administrative distance of external routes to 150:

```
hostname(config-router)# distance ospf external 105
hostname(config-router)#
```

The following example shows how entering separate commands for each route type appears as a single command in the router configuration:

```
hostname(config-rtr)# distance ospf intra-area 105 inter-area 105
hostname(config-rtr)# distance ospf intra-area 105
hostname(config-rtr)# distance ospf external 105
hostname(config-rtr)# exit
hostname(config)# show running-config router ospf 1
!
router ospf 1
 distance ospf intra-area 105 inter-area 105 external 105
!
hostname(config)#
```

The following example shows how to set each administrative distance to 105, and then change only the external administrative distance to 150. The **show running-config router ospf** command shows how only the external route type value changed, while the other route types retained the value previously set.

```
hostname(config-rtr)# distance ospf external 105 intra-area 105 inter-area 105
hostname(config-rtr)# distance ospf external 150
hostname(config-rtr)# exit
hostname(config)# show running-config router ospf 1
!
router ospf 1
 distance ospf intra-area 105 inter-area 105 external 150
!
hostname(config)#
```

Related Commands

Command	Description
router ospf	Enters router configuration mode for OSPFv2.
show running-config router	Displays the OSPFv2 commands in the global router configuration.

distribute-list in

To filter incoming routing updates, use the **distribute-list in** command in router configuration mode. To remove the filtering, use the **no** form of this command.

distribute-list *acl* **in** [**interface** *if_name*]

no distribute-list *acl* **in** [**interface** *if_name*]

Syntax Description

acl	Name of a standard access list.
interface *if_name*	(Optional) The interface on which to apply the incoming routing updates. Specifying an interface causes the access list to be applied only to routing updates received on that interface.

Defaults

Networks are not filtered in incoming updates.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

If no interface is specified, the access list will be applied to all incoming updates.

Examples

The following example filters RIP routing updates received on the outside interface. It accepts routes in the 10.0.0.0 network and discards all others.

```
hostname(config)# access-list ripfilter permit 10.0.0.0
hostname(config)# access-list ripfilter deny any
hostname(config)# router rip
hostname(config-router)# network 10.0.0.0
hostname(config-router)# distribute-list ripfilter in interface outside
```

The following example filters EIGRP routing updates received on the outside interface. It accepts routes in the 10.0.0.0 network and discards all others.

```
hostname(config)# access-list eigrp_filter permit 10.0.0.0
hostname(config)# access-list eigrp_filter deny any
hostname(config)# router eigrp 100
```

```
hostname(config-router)# network 10.0.0.0
hostname(config-router)# distribute-list eigrp_filter in interface outside
```

Related Commands

Command	Description
distribute-list out	Filters outgoing routing updates.
router eigrp	Enters router configuration mode for the EIGRP routing process.
router rip	Enters router configuration mode for the RIP routing process.
show running-config router	Displays the commands in the global router configuration.

distribute-list out

To filter outgoing routing updates, use the **distribute-list out** command in router configuration mode. To remove the filtering, use the **no** form of this command.

distribute-list *acl* **out** [**interface** *if_name*] [**eigrp** *as_number* | **rip** | **ospf** *pid* | **static** | **connected**]

no distribute-list *acl* **out** [**interface** *if_name*] [**eigrp** *as_number* | **rip** | **ospf** *pid* | **static** | **connected**]

Syntax Description

acl	Name of a standard access list.
connected	(Optional) Filters only connected routes.
eigrp *as_number*	(Optional) Filters only EIGRP routes from the specified autonomous system number. The *as_number* argument is the autonomous system number of the EIGRP routing process on the ASA.
interface *if_name*	(Optional) The interface on which to apply the outgoing routing updates. Specifying an interface causes the access list to be applied only to routing updates received on that interface.
ospf *pid*	(Optional) Filters only OSPF routes discovered by the specified OSPF process.
rip	(Optional) Filters only RIP routes.
static	(Optional) Filters only static routes.

Defaults

Networks are not filtered in sent updates.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.
8.0(2)	The **eigrp** keyword was added.

Usage Guidelines

If no interface is specified, the access list will be applied to all outgoing updates.

Examples

The following example prevents the 10.0.0.0 network from being advertised in RIP updates sent out of any interface:

```
hostname(config)# access-list ripfilter deny 10.0.0.0
hostname(config)# access-list ripfilter permit any
```

```
hostname(config)# router rip
hostname(config-router)# network 10.0.0.0
hostname(config-router)# distribute-list ripfilter out
```

The following example prevents the EIGRP routing process from advertising the 10.0.0.0 network on the outside interface:

```
hostname(config)# access-list eigrp_filter deny 10.0.0.0
hostname(config)# access-list eigrp_filter permit any
hostname(config)# router eigrp 100
hostname(config-router)# network 10.0.0.0
hostname(config-router)# distribute-list eigrp_filter out interface outside
```

Related Commands

Command	Description
distribute-list in	Filters incoming routing updates.
router eigrp	Enters router configuration mode for the EIGRP routing process.
router rip	Enters router configuration mode for the RIP routing process.
show running-config router	Displays the commands in the global router configuration.

CHAPTER 19

dns domain-lookup through dynamic-filter whitelist Commands

dns domain-lookup

To enable the ASA to send DNS requests to a DNS server to perform a name lookup for supported commands, use the **dns domain-lookup** command in global configuration mode. To disable DNS requests, use the **no** form of this command.

dns domain-lookup *interface_name*

no dns domain-lookup *interface_name*

Syntax Description

interface_name	Specifies the name of the configured interface.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	—	•	—	—

Command History

Release	Modification
8.4(2)	This command was introduced.

Usage Guidelines

The command enable the ASA to send DNS requests to a DNS server to perform a name lookup for supported commands.

Examples

The following example enable the ASA to send DNS requests to a DNS server to perform a name lookup for the inside interface:

```
hostname(config)# dns domain-lookup inside
```

Related Commands

Command	Description
clear configure dns	Removes all DNS commands.
dns server-group	Enters dns-server-group mode, in which you can configure a DNS server group.
show running-config dns-server group	Shows one or all the existing DNS server group configurations.

dns expire-entry-timer

To remove the IP address of a resolved FQDN after its TTL expires, use the **dns expire-entry-timer** command in global configuration mode. To remove the timer, use the **no** form of this command.

dns expire-entry-timer minutes *minutes*

no dns expire-entry-timer minutes *minutes*

Syntax Description

minutes *minutes*	Specifies the timer time in minutes. Valid values range from 1 to 65535 minutes.

Defaults

By default, the DNS expire-entry-timer value is 1 minute.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration mode	•	—	•	—	—

Command History

Release	Modification
8.4(2)	This command was introduced.

Usage Guidelines

The command specifies the time to remove the IP address of a resolved FQDN after its TTL expires. When the IP address is removed, the ASA recompiles the tmatch lookup table.

Specifying this command is only effective when the associated network object for the DNS is activated.

The default DNS expire-entry-timer value is 1 minute, which means that IP addresses are removed 1 minute after the TTL of the DNS entry expires.

Note The default setting might result in frequent recompilation of the tmatch lookup table when the resolved TTL of common FQDN hosts, such as www.sample.com, is a short time period. You can specify a long DNS expire-entry timer value to reduce the frequency of recompilation of the tmatch lookup table while maintaining security.

Examples

The following example removes resolved entries after 240 minutes:

```
hostname(config)# dns expire-entry-timer minutes 240
```

Related Commands

Command	Description
clear configure dns	Removes all DNS commands.
dns server-group	Enters dns-server-group mode, in which you can configure a DNS server group.
show running-config dns-server group	Shows one or all the existing DNS server group configurations.

dns name-server

To configure a DNS server for the ASA, user the **dns name-server** command in global configuration mode. To remove the configuration, use the **no** form of this command.

dns name-server *ipv4_addr* | *ipv6_addr*

no dns name-server *ipv4_addr* | *ipv6_addr*

Syntax Description

ipv4_addr	Specifies the IPv4 address of the DNS server.
ipv6_addr	Specifies the IPv6 address of the DNS server.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
8.4(2)	This command was introduced.
9.0(1)	Support of IPv6 addresses was added.

Usage Guidelines

Use this command to identify a DNS server address for the ASA. The ASA supports both IPv4 and IPv6 addresses for DNS servers.

Examples

The following example configures a DNS server with an IPv6 address:

```
hostname(config)# dns domain-lookup
hostname(config)# dns name-server 8080:1:2::2
hostname(config)# dns retries 4
hostname(config)# dns timeout 10
```

Related Commands

Command	Description
clear configure dns	Removes all DNS commands.

Command	Description
dns server-group	Enters dns-server-group mode, in which you can configure a DNS server group.
show running-config dns-server group	Shows one or all the existing DNS server group configurations.

dns poll-timer

To specify the timer during which the ASA queries the DNS server to resolve fully qualified domain names (FQDN) that are defined in a network object group, use the **dns poll-timer** command in global configuration mode. To remove the timer, use the **no** form of this command.

dns poll-timer minutes *minutes*

no dns poll-timer minutes *minutes*

Syntax Description

minutes *minutes*	Specifies the timer in minutes. Valid values are from 1 to 65535 minutes.

Defaults

By default, the DNS timer is 240 minutes or 4 hours.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
8.4(2)	This command was introduced.

Usage Guidelines

This command specifies the timer during which the ASA queries the DNS server to resolve the FQDN that was defined in a network object group. A FQDN is resolved periodically when the poll DNS timer has expired or when the TTL of the resolved IP entry has expired, whichever comes first.

This command has effect only when at least one network object group has been activated.

Examples

The following example sets the DNS poll timer to 240 minutes:

```
hostname(config)# dns poll-timer minutes 240
```

Related Commands

Command	Description
clear configure dns	Removes all DNS commands.
dns server-group	Enters dns-server-group mode, in which you can configure a DNS server group.
show running-config dns-server group	Shows one or all the existing DNS server-group configurations.

dns update

To start DNS lookup to resolve the designated hostnames without waiting for the expiration of the DNS poll timer, use the **dns update** command in privileged EXEC mode.

dns update [**host** *fqdn_name*] [**timeout seconds** *seconds*]

Syntax Description

host *fqdn_name*	Specifies the fully qualified domain name of the host on which to run DNS updates.
timeout seconds *seconds*	Specifies the timeout in seconds.

Defaults

By default, the timeout is 30 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC mode	•	—	•	—	—

Command History

Release	Modification
8.4(2)	This command was introduced.

Usage Guidelines

This command immediately starts a DNS lookup to resolve the designated hostnames without waiting for the expiration of the DNS poll timer. When you run DNS update without specifying an option, all activated host groups and FQDN hosts are selected for DNS lookup. When the command finishes running, the ASA displays [Done] at the command prompt and generates a syslog message.

When the update operation starts, a starting update log is created. When the update operation finishes or is aborted after the timer has expired, another syslog message is generated. Only one outstanding DNS update operation is allowed. If you reissue the command, an error message appears.

Examples

The following example performs a DNS update:

```
hostname# dns update
hostname# …
hostname# [Done] dns update
```

Related Commands

Command	Description
clear configure dns	Removes all DNS commands.
dns server-group	Enters dns-server-group mode, in which you can configure a DNS server group.
show running-config dns-server group	Shows one or all the existing DNS server group configurations.

dns-group

To specify the DNS server to use for a WebVPN tunnel group, use the **dns-group** command in tunnel-group webvpn configuration mode. To restore the default DNS group, use the **no** form of this command.

dns-group *name*

no dns-group

Syntax Description

name	Specifies the name of the DNS server group configuration to use for the tunnel group.

Defaults

The default value is DefaultDNS.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tunnel-group webvpn-attributes configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

The name can specify any DNS group. The **dns-group** command resolves the hostname to the appropriate DNS server for the tunnel group.

You configure the DNS group using the **dns server-group** command.

Examples

The following example shows a customization command that specifies the use of the DNS group named "dnsgroup1":

```
hostname(config)# tunnel-group test type webvpn
hostname(config)# tunnel-group test webvpn-attributes
hostname(config-tunnel-webvpn)# dns-group dnsgroup1
hostname(config-tunnel-webvpn)#
```

Related Commands

Command	Description
clear configure dns	Removes all DNS commands.
dns server-group	Enters dns-server-group mode, in which you can configure a DNS server group.
show running-config dns-server group	Shows one or all the existing DNS server group configurations.
tunnel-group webvpn-attributes	Enters the config-webvpn mode for configuring WebVPN tunnel group attributes.

dns-guard

To enable the DNS guard function, which enforces one DNS response per query, use the **dns-guard** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

dns-guard

no dns-guard

Syntax Description

This command has no arguments or keywords.

Defaults

DNS guard is enabled by default. This feature can be enabled when the **inspect dns** command is configured even if a **policy-map type inspect dns** command is not defined. To disable, the **no dns-guard** command must explicitly be stated in the policy map configuration. If the **inspect dns** command is not configured, the behavior is determined by the **global dns-guard** command.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

The identification field in the DNS header is used to match the DNS response with the DNS header. One response per query is allowed through the ASA.

Examples

The following example shows how to enable DNS guard in a DNS inspection policy map:

```
hostname(config)# policy-map type inspect dns preset_dns_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# dns-guard
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.

Command	Description
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

dns-server

To set the IP address of the primary and secondary DNS servers, use the **dns-server** command in group-policy configuration mode. To remove the attribute from the running configuration, use the **no** form of this command.

dns-server {**value** *ip_address* [*ip_address*] | **none**}

no dns-server

Syntax Description

none	Sets the **dns-server** command to a null value, thereby allowing no DNS servers. Prevents inheriting a value from a default or specified group policy.
value *ip_address*	Specifies the IP address of the primary and secondary DNS servers.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command allows inheritance of a DNS server from another group policy. To prevent inheriting a server, use the **dns-server none** command.

Each time you issue the **dns-server** command, you overwrite the existing setting. For example, if you configure DNS server x.x.x.x and then configure DNS server y.y.y.y, the second command overwrites the first, and y.y.y.y becomes the sole DNS server. The same holds true for multiple servers. To add a DNS server rather than overwrite previously configured servers, include the IP addresses of all DNS servers when you enter this command.

Examples

The following example shows how to configure DNS servers with the IP addresses 10.10.10.15, 10.10.10.30, and 10.10.10.45 for the group policy named FirstGroup.

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# dns-server value 10.10.10.15 10.10.10.30 10.10.10.45
```

Related Commands

Command	Description
clear configure dns	Removes all DNS commands.
show running-config dns server-group	Shows the current running DNS server group configuration.

dns server-group

To specify the domain name, name server, number of retries, and timeout values for a DNS server to use for a tunnel group, use the **dns server-group** command in global configuration mode. To remove a particular DNS server group, use the **no** form of this command.

dns server -group *name*

no dns server-group

Syntax Description

name	Specifies the name of the DNS server group configuration to use for the tunnel group.

Defaults

The default value is DefaultDNS.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

The name can specify any DNS group. You configure the DNS group using the **dns server-group** command.

Examples

The following example configures a DNS server group named “eval”:

```
hostname(config)# dns server-group eval
hostname(config-dns-server-group)# domain-name cisco.com
hostname(config-dns-server-group)# name-server 192.168.10.10
hostname(config-dns-server-group)# retries 5
hostname(config-dns-server-group)# timeout 7
hostname(config-dns-server-group)#
```

Related Commands

Command	Description
clear configure dns	Removes all DNS commands.
show running-config dns server-group	Shows the current running DNS server group configuration.

domain-name

To set the default domain name, use the **domain-name** command in global configuration mode. To remove the domain name, use the **no** form of this command.

domain-name *name*

no domain-name [*name*]

Syntax Description

name	Sets the domain name, up to 63 characters.

Defaults

The default domain name is default.domain.invalid.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The ASA appends the domain name as a suffix to unqualified names. For example, if you set the domain name to "example.com" and specify a syslog server by the unqualified name of "jupiter," then the ASA qualifies the name to "jupiter.example.com." For multiple context mode, you can set the domain name for each context, as well as within the system execution space.

Examples

The following example sets the domain to example.com:

```
hostname(config)# domain-name example.com
```

Related Commands

Command	Description
dns domain-lookup	Enables the ASA to perform a name lookup.
dns name-server	Identifies a DNS server for the ASA.
hostname	Sets the ASA hostname.
show running-config domain-name	Shows the domain name configuration.

domain-name (dns server-group)

To set the default domain name, use the **domain-name** command in dns server-group configuration mode. To remove the domain name, use the **no** form of this command.

domain-name *name*

no domain-name [*name*]

Syntax Description

name	Sets the domain name, up to 63 characters.

Defaults

The default domain name is default.domain.invalid.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Dns server-group configuration	•	•	•	•	•

Command History

Release	Modification
7.1(1)	This command replaces the **dns domain-lookup** command, which has been deprecated.

Usage Guidelines

The ASA appends the domain name as a suffix to unqualified names. For example, if you set the domain name to "example.com," and specify a syslog server by the unqualified name of "jupiter," then the ASA qualifies the name to "jupiter.example.com." For multiple context mode, you can set the domain name for each context, as well as within the system execution space.

Examples

The following example sets the domain to "example.com" for "dnsgroup1":

```
hostname(config)# dns server-group dnsgroup1
hostname(config-dns-server-group)# domain-name example.com
```

Related Commands

Command	Description
clear configure dns	Removes all DNS commands.
dns server-group	Enters dns-server-group configuration mode, in which you can configure a DNS server group.

Command	Description
domain-name	Sets the default domain name globally.
show running-config dns-server group	Shows one or all the current DNS server group configurations.

downgrade

To downgrade your software version, use the **downgrade** command in global configuration mode.

downgrade [**/noconfirm**] *old_image_url old_config_url* [**activation-key** *old_key*]

Syntax Description

activation-key *old_key*	(Optional) If you need to revert the activation key, then you can enter the old activation key.
old_config_url	Specifies the path to the saved, pre-migration configuration (by default this was saved on disk0).
old_image_url	Specifies the path to the old image on disk0, disk1, tftp, ftp, or smb.
/noconfirm	(Optional) Downgrades without prompting.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	—	•

Command History

Release	Modification
8.3(1)	This command was introduced.

Usage Guidelines

This command is a shortcut for completing the following functions:

1. Clearing the boot image configuration (**clear configure boot**).
2. Setting the boot image to be the old image (**boot system**).
3. (Optional) Entering a new activation key (**activation-key**).
4. Saving the running configuration to startup (**write memory**). This sets the BOOT environment variable to the old image, so when you reload, the old image is loaded.
5. Copying the old configuration to the startup configuration (**copy** *old_config_url* **startup-config**).
6. Reloading (**reload**).

Examples

The following example downgrades without confirming:

```
hostname(config)# downgrade /noconfirm disk0:/asa821-k8.bin disk0:/8_2_1_0_startup_cfg.sav
```

Related Commands

Command	Description
activation-key	Enters an activation key.
boot system	Sets the image to boot from.
clear configure boot	Clears the boot image configuration.
copy startup-config	Copies a configuration to the startup configuration.

download-max-size

To specify the maximum size allowed for an object to download, use the **download-max-size** command in group-policy webvpn configuration mode. To remove this object from the configuration, use the **no** version of this command.

download-max-size *size*

no download-max-size

Syntax Description

size	Specifies the maximum size allowed for a downloaded object. The range is 0 through 2147483647.

Defaults

The default size is 2147483647.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy webvpn configuration mode	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Setting the size to 0 effectively disallows object downloading.

Examples

The following example sets the maximum size for a downloaded object to 1500 bytes:

```
hostname(config)# group-policy test attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# download-max-size 1500
```

Related Commands

Command	Description
post-max-size	Specifies the maximum size of an object to post.
upload-max-size	Specifies the maximum size of an object to upload.

Command	Description
webvpn	Use in group-policy configuration mode or in username configuration mode. Lets you enter webvpn mode to configure parameters that apply to group policies or usernames.
webvpn	Use in global configuration mode. Lets you configure global settings for WebVPN.

drop

To drop all packets that match the **match** command or **class** command, use the **drop** command in match or class configuration mode. To disable this action, use the **no** form of this command.

drop [**send-protocol-error**] [**log**]

no drop [**send-protocol-error**] [**log**]

Syntax Description

log	Logs the match. The syslog message number depends on the application.
send-protocol-error	Sends a protocol error message.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Match and class configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

When using the Modular Policy Framework, drop packets that match a **match** command or class map by using the **drop** command in match or class configuration mode. This drop action is available in an inspection policy map (the **policy-map type inspect** command) for application traffic; however, not all applications allow this action.

An inspection policy map consists of one or more **match** and **class** commands. The exact commands available for an inspection policy map depends on the application. After you enter the **match** or **class** command to identify application traffic (the **class** command refers to an existing **class-map type inspect** command that in turn includes **match** commands), you can enter the **drop** command to drop all packets that match the **match** command or **class** command.

If you drop a packet, then no further actions are performed in the inspection policy map. For example, if the first action is to drop the packet, then it will never match any further **match** or **class** commands. If the first action is to log the packet, then a second action, such as dropping the packet, can occur. You can configure both the **drop** and the **log** action for the same **match** or **class** command, in which case the packet is logged before it is dropped for a given match.

When you enable application inspection using the **inspect** command in a Layer 3/4 policy map (the **policy-map** command), you can enable the inspection policy map that contains this action, for example, enter the **inspect http http_policy_map** command where http_policy_map is the name of the inspection policy map.

Examples

The following example drops packets and sends a log when they match the HTTP traffic class map. If the same packet also matches the second **match** command, it will not be processed because it was already dropped.

```
hostname(config-cmap)# policy-map type inspect http http-map1
hostname(config-pmap)# class http-traffic
hostname(config-pmap-c)# drop log
hostname(config-pmap-c)# match req-resp content-type mismatch
hostname(config-pmap-c)# reset log
```

Related Commands

Commands	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
policy-map type inspect	Defines special actions for application inspection.
show running-config policy-map	Display all current policy map configurations.

drop-connection

When using the Modular Policy Framework, drop packets and close the connection for traffic that matches a **match** command or class map by using the **drop-connection** command in match or class configuration mode. To disable this action, use the **no** form of this command.

drop-connection [**send-protocol-error**] [**log**]

no drop-connection [**send-protocol-error**] [**log**]

Syntax Description

send-protocol-error	Sends a protocol error message.
log	Logs the match. The system log message number depends on the application.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Match and class configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

The connection will be removed from the connection database on the ASA. Any subsequent packets entering the ASA for the dropped connection will be discarded. This drop-connection action is available in an inspection policy map (the **policy-map type inspect** command) for application traffic; however, not all applications allow this action. An inspection policy map consists of one or more **match** and **class** commands. The exact commands available for an inspection policy map depends on the application. After you enter the **match** or **class** command to identify application traffic (the **class** command refers to an existing **class-map type inspect** command that in turn includes **match** commands), you can enter the **drop-connection** command to drop packets and close the connection for traffic that matches the **match** command or **class** command.

If you drop a packet or close a connection, then no further actions are performed in the inspection policy map. For example, if the first action is to drop the packet and close the connection, then it will never match any further **match** or **class** commands. If the first action is to log the packet, then a second action, such as dropping the packet, can occur. You can configure both the **drop-connection** and the **log** action for the same **match** or **class** command, in which case the packet is logged before it is dropped for a given match.

When you enable application inspection using the **inspect** command in a Layer 3/4 policy map (the **policy-map** command), you can enable the inspection policy map that contains this action. For example, enter the **inspect http http_policy_map** command, where http_policy_map is the name of the inspection policy map.

Examples

The following example drops packets, closes the connection, and sends a log when they match the http-traffic class map. If the same packet also matches the second **match** command, it will not be processed because it was already dropped.

```
hostname(config-cmap)# policy-map type inspect http http-map1
hostname(config-pmap)# class http-traffic
hostname(config-pmap-c)# drop-connection log
hostname(config-pmap-c)# match req-resp content-type mismatch
hostname(config-pmap-c)# reset log
```

Related Commands

Commands	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
policy-map type inspect	Defines special actions for application inspection.
show running-config policy-map	Display all current policy map configurations.

dtls port

To specify a port for DTLS connections, use the **dtls port** command from webvpn configuration mode. To remove the command from the configuration, use the **no** form of this command:

dtls port *number*

no dtls port *number*

Syntax Description

number	The UDP port number, from 1 to 65535.

Defaults

The default port number is 443.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

This command specifies the UDP port to be used for SSL VPN connections using DTLS.

DTLS avoids latency and bandwidth problems associated with some SSL connections and improves the performance of real-time applications that are sensitive to packet delays.

Examples

The following example enters webvpn configuration mode and specifies port 444 for DTLS:

```
hostname(config)# webvpn
hostname(config-webvpn)# dtls port 444
```

Related Commands

Command	Description
dtls enable	Enables DTLS on an interface.
svc dtls	Enables DTLS for groups or users establishing SSL VPN connections.
vpn-tunnel-protocol	Specifies VPN protocols that the ASA allows for remote access, including SSL.

duplex

To set the duplex of a copper (RJ-45) Ethernet interface, use the **duplex** command in interface configuration mode. To restore the duplex setting to the default, use the **no** form of this command.

duplex {**auto** | **full** | **half**}

no duplex

Syntax Description

auto	Auto-detects the duplex mode.
full	Sets the duplex mode to full duplex.
half	Sets the duplex mode to half duplex.

Defaults

The default is auto detect.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was moved from a keyword of the **interface** command to an interface configuration mode command.

Usage Guidelines

Set the duplex mode on the physical interface only.

The **duplex** command is not available for fiber media.

If your network does not support auto detection, set the duplex mode to a specific value.

For RJ-45 interfaces on the ASA 5500 series, the default auto-negotiation setting also includes the Auto-MDI/MDIX feature. Auto-MDI/MDIX eliminates the need for crossover cabling by performing an internal crossover when a straight cable is detected during the auto-negotiation phase. Either the speed or duplex must be set to auto-negotiate to enable Auto-MDI/MDIX for the interface. If you explicitly set both the speed and duplex to a fixed value, thus disabling auto-negotiation for both settings, then Auto-MDI/MDIX is also disabled.

If you set the duplex to anything other than **auto** on PoE ports, if available, then Cisco IP phones and Cisco wireless access points that do not support IEEE 802.3af will not be detected and supplied with power.

Examples

The following example sets the duplex mode to full duplex:

```
hostname(config)# interface gigabitethernet0/1
hostname(config-if)# speed 1000
hostname(config-if)# duplex full
hostname(config-if)# nameif inside
hostname(config-if)# security-level 100
hostname(config-if)# ip address 10.1.1.1 255.255.255.0
hostname(config-if)# no shutdown
```

Related Commands

Command	Description
clear configure interface	Clears all configuration for an interface.
interface	Configures an interface and enters interface configuration mode.
show interface	Displays the runtime status and statistics of interfaces.
show running-config interface	Shows the interface configuration.
speed	Sets the interface speed.

dynamic-access-policy-config

To configure a DAP record and the access policy attributes associated with it, use the **dynamic-access-policy-config** command in global configuration mode. To remove an existing DAP configuration, use the **no** form of this command.

dynamic-access-policy-config *name* | *activate*

no dynamic-access-policy-config

Syntax Description

activate	Activates the DAP selection configration file.
name	Specifies the name of the DAP record. The name can be up to 64 characters long and cannot contain spaces.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration (name)	•	•	•	•	—
Privileged EXEC (activate)	•	•	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

Use the **dynamic-access-policy-config** command in global configuration mode to create one or more DAP records. To activate a DAP selection configuration file, use the **dynamic-access-policy-config** command with the *activate* argument.

When you use this command, you enter dynamic-access-policy-record mode, in which you can set attributes for the named DAP record. The commands you can use in dynamic-access-policy-record mode include the following:

- **action**
- **description**
- **network-acl**
- **priority**
- **user-message**

- **webvpn**

Examples

The following example shows how to configure the DAP record named user1:

```
hostname(config)# dynamic-access-policy-config user1
hostname(config-dynamic-access-policy-record)#
```

Related Commands

Command	Description
dynamic-access-policy-record	Populates the DAP record with access policy attributes.
show running-config dynamic-access-policy-record	Displays the running configuration for all DAP records, or for the named DAP record.

dynamic-access-policy-record

To create a DAP record and populate it with access policy attributes, use the **dynamic-access-policy-record** command in global configuration mode. To remove an existing DAP record, use the **no** form of this command.

dynamic-access-policy-record *name*

no dynamic-access-policy-record *name*

Syntax Description

name	Specifies the name of the DAP record. The name can be up to 64 characters long and cannot contain spaces.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Use the **dynamic-access-policy-record** command in global configuration mode to create one or more DAP records. When you use this command, you enter dynamic-access-policy-record mode, in which you can set attributes for the named DAP record. The commands you can use in dynamic-access-policy-record mode include the following:

- **action** (**continue**, **terminate**, or **quarantine**)
- **description**
- **network-acl**
- **priority**
- **user-message**
- **webvpn**

Examples

The following example shows how to create a DAP record named Finance.

```
hostname(config)# dynamic-access-policy-record Finance
hostname(config-dynamic-access-policy-record)#
```

Related Commands

Command	Description
clear config dynamic-access-policy-record	Removes all DAP records or the named DAP record.
dynamic-access-policy-config url	Configures the DAP Selection Configuration file.
show running-config dynamic-access-policy-record	Displays the running configuration for all DAP records, or for the named DAP record.

dynamic-filter ambiguous-is-black

To treat Botnet Traffic Filter greylisted traffic as blacklisted traffic for dropping purposes, use the **dynamic-filter ambiguous-is-black** command in global configuration mode. To allow greylisted traffic, use the **no** form of this command.

dynamic-filter ambiguous-is-black

no dynamic-filter ambiguous-is-black

Syntax Description

This command has no arguments or keywords.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.2(2)	This command was introduced.

Usage Guidelines

If you configured the **dynamic-filter enable** command and then the **dynamic-filter drop blacklist** command, this command treats greylisted traffic as blacklisted traffic for dropping purposes. If you do not enable this command, greylisted traffic will not be dropped.

Ambiguous addresses are associated with multiple domain names, but not all of these domain names are on the blacklist. These addresses are on the greylist.

Examples

The following example monitors all port 80 traffic on the outside interface, and then drops blacklisted and greylisted traffic at a threat level of moderate or greater:

```
hostname(config)# access-list dynamic-filter_acl extended permit tcp any any eq 80
hostname(config)# dynamic-filter enable interface outside classify-list dynamic-filter_acl
hostname(config)# dynamic-filter drop blacklist interface outside
hostname(config)# dynamic-filter ambiguous-is-black
```

Related Commands

Command	Description
address	Adds an IP address to the blacklist or whitelist.
clear configure dynamic-filter	Clears the running Botnet Traffic Filter configuration.
clear dynamic-filter dns-snoop	Clears Botnet Traffic Filter DNS snooping data.
clear dynamic-filter reports	Clears Botnet Traffic filter report data.
clear dynamic-filter statistics	Clears Botnet Traffic filter statistics.
dns domain-lookup	Enables the ASA to send DNS requests to a DNS server to perform a name lookup for supported commands.
dns server-group	Identifies a DNS server for the ASA.
dynamic-filter blacklist	Edits the Botnet Traffic Filter blacklist.
dynamic-filter database fetch	Manually retrieves the Botnet Traffic Filter dynamic database.
dynamic-filter database find	Searches the dynamic database for a domain name or IP address.
dynamic-filter database purge	Manually deletes the Botnet Traffic Filter dynamic database.
dynamic-filter drop blacklist	Automatically drops blacklisted traffic.
dynamic-filter enable	Enables the Botnet Traffic Filter for a class of traffic or for all traffic if you do not specify an access list.
dynamic-filter updater-client enable	Enables downloading of the dynamic database.
dynamic-filter use-database	Enables use of the dynamic database.
dynamic-filter whitelist	Edits the Botnet Traffic Filter whitelist.
inspect dns dynamic-filter-snoop	Enables DNS inspection with Botnet Traffic Filter snooping.
name	Adds a name to the blacklist or whitelist.
show asp table dynamic-filter	Shows the Botnet Traffic Filter rules that are installed in the accelerated security path.
show dynamic-filter data	Shows information about the dynamic database, including when the dynamic database was last downloaded, the version of the database, how many entries the database contains, and 10 sample entries.
show dynamic-filter dns-snoop	Shows the Botnet Traffic Filter DNS snooping summary, or with the **detail** keyword, the actual IP addresses and names.
show dynamic-filter reports	Generates reports of the top 10 botnet sites, ports, and infected hosts.
show dynamic-filter statistics	Shows how many connections were monitored with the Botnet Traffic Filter, and how many of those connections match the whitelist, blacklist, and greylist.
show dynamic-filter updater-client	Shows information about the updater server, including the server IP address, the next time the ASA will connect with the server, and the database version last installed.
show running-config dynamic-filter	Shows the Botnet Traffic Filter running configuration.

dynamic-filter blacklist

To edit the Botnet Traffic Filter blacklist, use the **dynamic-filter blacklist** command in global configuration mode. To remove the blacklist, use the **no** form of this command.

dynamic-filter blacklist

no dynamic-filter blacklist

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

After you enter the dynamic-filter blacklist configuration mode, you can manually enter domain names or IP addresses (host or subnet) that you want to tag as bad names in a blacklist using the **address** and **name** commands. You can also enter names or IP addresses in a whitelist (see the **dynamic-filter whitelist** command), so that names or addresses that appear on both the dynamic blacklist and whitelist are identified only as whitelist addresses in syslog messages and reports. Note that you see syslog messages for whitelisted addresses even if the address is not also in the dynamic blacklist.

Static blacklist entries are always designated with a Very High threat level.

When you add a domain name to the static database, the ASA waits 1 minute, and then sends a DNS request for that domain name and adds the domain name/IP address pairing to the *DNS host cache*. (This action is a background process, and does not affect your ability to continue configuring the ASA). We recommend also enabling DNS packet inspection with Botnet Traffic Filter snooping (see the **inspect dns dynamic-filter-snooping** command). The ASA uses Botnet Traffic Filter snooping instead of the regular DNS lookup to resolve static blacklist domain names in the following circumstances:

- The ASA DNS server is unavailable.
- A connection is initiated during the 1-minute waiting period before the ASA sends the regular DNS request.

If DNS snooping is used, when an infected host sends a DNS request for a name on the static database, the ASA looks inside the DNS packets for the domain name and associated IP address and adds the name and IP address to the DNS reverse lookup cache.

The static database lets you augment the dynamic database with domain names or IP addresses that you want to blacklist.

If you do not enable Botnet Traffic Filter snooping, and one of the above circumstances occurs, then that traffic will not be monitored by the Botnet Traffic Filter.

Note This command requires ASA use of a DNS server; see the **dns domain-lookup** and **dns server-group** commands.

Examples

The following example creates entries for the blacklist and whitelist:

```
hostname(config)# dynamic-filter blacklist
hostname(config-llist)# name bad1.example.com
hostname(config-llist)# name bad2.example.com
hostname(config-llist)# address 10.1.1.1 255.255.255.0

hostname(config-llist)# dynamic-filter whitelist
hostname(config-llist)# name good.example.com
hostname(config-llist)# name great.example.com
hostname(config-llist)# name awesome.example.com
hostname(config-llist)# address 10.1.1.2 255.255.255.255
```

Related Commands

Command	Description
address	Adds an IP address to the blacklist or whitelist.
clear configure dynamic-filter	Clears the running Botnet Traffic Filter configuration.
clear dynamic-filter dns-snoop	Clears Botnet Traffic Filter DNS snooping data.
clear dynamic-filter reports	Clears Botnet Traffic filter report data.
clear dynamic-filter statistics	Clears Botnet Traffic filter statistics.
dns domain-lookup	Enables the ASA to send DNS requests to a DNS server to perform a name lookup for supported commands.
dns server-group	Identifies a DNS server for the ASA.
dynamic-filter ambiguous-is-black	Treats greylisted traffic as blacklisted traffic for action purposes.
dynamic-filter database fetch	Manually retrieves the Botnet Traffic Filter dynamic database.
dynamic-filter database find	Searches the dynamic database for a domain name or IP address.
dynamic-filter database purge	Manually deletes the Botnet Traffic Filter dynamic database.
dynamic-filter drop blacklist	Automatically drops blacklisted traffic.
dynamic-filter enable	Enables the Botnet Traffic Filter for a class of traffic or for all traffic if you do not specify an access list.
dynamic-filter updater-client enable	Enables downloading of the dynamic database.
dynamic-filter use-database	Enables use of the dynamic database.
dynamic-filter whitelist	Edits the Botnet Traffic Filter whitelist.

Command	Description
inspect dns dynamic-filter-snoop	Enables DNS inspection with Botnet Traffic Filter snooping.
name	Adds a name to the blacklist or whitelist.
show asp table dynamic-filter	Shows the Botnet Traffic Filter rules that are installed in the accelerated security path.
show dynamic-filter data	Shows information about the dynamic database, including when the dynamic database was last downloaded, the version of the database, how many entries the database contains, and 10 sample entries.
show dynamic-filter dns-snoop	Shows the Botnet Traffic Filter DNS snooping summary, or with the **detail** keyword, the actual IP addresses and names.
show dynamic-filter reports	Generates reports of the top 10 botnet sites, ports, and infected hosts.
show dynamic-filter statistics	Shows how many connections were monitored with the Botnet Traffic Filter, and how many of those connections match the whitelist, blacklist, and greylist.
show dynamic-filter updater-client	Shows information about the updater server, including the server IP address, the next time the ASA will connect with the server, and the database version last installed.
show running-config dynamic-filter	Shows the Botnet Traffic Filter running configuration.

dynamic-filter database fetch

To test the download of the dynamic database for the Botnet Traffic Filter, use the **dynamic-filter database fetch** command in privileged EXEC mode.

dynamic-filter database fetch

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

The actual database is not stored on the ASA; it is downloaded and then discarded. Use this command for testing purposes only.

Examples

The following example tests the download of the dynamic database:

```
hostname# dynamic-filter database fetch
```

Related Commands

Command	Description
address	Adds an IP address to the blacklist or whitelist.
clear configure dynamic-filter	Clears the running Botnet Traffic Filter configuration.
clear dynamic-filter dns-snoop	Clears Botnet Traffic Filter DNS snooping data.
clear dynamic-filter reports	Clears Botnet Traffic filter report data.
clear dynamic-filter statistics	Clears Botnet Traffic filter statistics.
dns domain-lookup	Enables the ASA to send DNS requests to a DNS server to perform a name lookup for supported commands.
dns server-group	Identifies a DNS server for the ASA.

Command	Description
dynamic-filter ambiguous-is-black	Treats greylisted traffic as blacklisted traffic for action purposes.
dynamic-filter blacklist	Edits the Botnet Traffic Filter blacklist.
dynamic-filter database find	Searches the dynamic database for a domain name or IP address.
dynamic-filter database purge	Manually deletes the Botnet Traffic Filter dynamic database.
dynamic-filter drop blacklist	Automatically drops blacklisted traffic.
dynamic-filter enable	Enables the Botnet Traffic Filter for a class of traffic or for all traffic if you do not specify an access list.
dynamic-filter updater-client enable	Enables downloading of the dynamic database.
dynamic-filter use-database	Enables use of the dynamic database.
dynamic-filter whitelist	Edits the Botnet Traffic Filter whitelist.
inspect dns dynamic-filter-snoop	Enables DNS inspection with Botnet Traffic Filter snooping.
name	Adds a name to the blacklist or whitelist.
show asp table dynamic-filter	Shows the Botnet Traffic Filter rules that are installed in the accelerated security path.
show dynamic-filter data	Shows information about the dynamic database, including when the dynamic database was last downloaded, the version of the database, how many entries the database contains, and 10 sample entries.
show dynamic-filter dns-snoop	Shows the Botnet Traffic Filter DNS snooping summary, or with the **detail** keyword, the actual IP addresses and names.
show dynamic-filter reports	Generates reports of the top 10 botnet sites, ports, and infected hosts.
show dynamic-filter statistics	Shows how many connections were monitored with the Botnet Traffic Filter, and how many of those connections match the whitelist, blacklist, and greylist.
show dynamic-filter updater-client	Shows information about the updater server, including the server IP address, the next time the ASA will connect with the server, and the database version last installed.
show running-config dynamic-filter	Shows the Botnet Traffic Filter running configuration.

dynamic-filter database find

To check if a domain name or IP address is included in the dynamic database for the Botnet Traffic Filter, use the **dynamic-filter database find** command in privileged EXEC mode.

dynamic-filter database find *string*

Syntax Description

string	The *string* can be the complete domain name or IP address, or you can enter part of the name or address, with a minimum search string of 3 characters. Regular expressions are not supported for the database search.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

If there are multiple matches, the first two matches are shown. To refine your search for a more specific match, enter a longer string.

Examples

The following example searches on the string “example.com,” and finds one match:

```
hostname# dynamic-filter database find bad.example.com

   bad.example.com
Found 1 matches
```

The following example searches on the string “bad,” and finds more than two matches:

```
hostname# dynamic-filter database find bad

   bad.example.com
   bad.example.net
Found more than 2 matches, enter a more specific string to find an exact
match
```

Related Commands

Command	Description
dynamic-filter ambiguous-is-black	Treats greylisted traffic as blacklisted traffic for action purposes.
dynamic-filter drop blacklist	Automatically drops blacklisted traffic.
address	Adds an IP address to the blacklist or whitelist.
clear configure dynamic-filter	Clears the running Botnet Traffic Filter configuration.
clear dynamic-filter dns-snoop	Clears Botnet Traffic Filter DNS snooping data.
clear dynamic-filter reports	Clears Botnet Traffic filter report data.
clear dynamic-filter statistics	Clears Botnet Traffic filter statistics.
dns domain-lookup	Enables the ASA to send DNS requests to a DNS server to perform a name lookup for supported commands.
dns server-group	Identifies a DNS server for the ASA.
dynamic-filter blacklist	Edits the Botnet Traffic Filter blacklist.
dynamic-filter database fetch	Manually retrieves the Botnet Traffic Filter dynamic database.
dynamic-filter database purge	Manually deletes the Botnet Traffic Filter dynamic database.
dynamic-filter enable	Enables the Botnet Traffic Filter for a class of traffic or for all traffic if you do not specify an access list.
dynamic-filter updater-client enable	Enables downloading of the dynamic database.
dynamic-filter use-database	Enables use of the dynamic database.
dynamic-filter whitelist	Edits the Botnet Traffic Filter whitelist.
inspect dns dynamic-filter-snoop	Enables DNS inspection with Botnet Traffic Filter snooping.
name	Adds a name to the blacklist or whitelist.
show asp table dynamic-filter	Shows the Botnet Traffic Filter rules that are installed in the accelerated security path.
show dynamic-filter data	Shows information about the dynamic database, including when the dynamic database was last downloaded, the version of the database, how many entries the database contains, and 10 sample entries.
show dynamic-filter dns-snoop	Shows the Botnet Traffic Filter DNS snooping summary, or with the **detail** keyword, the actual IP addresses and names.
show dynamic-filter reports	Generates reports of the top 10 botnet sites, ports, and infected hosts.
show dynamic-filter statistics	Shows how many connections were monitored with the Botnet Traffic Filter, and how many of those connections match the whitelist, blacklist, and greylist.
show dynamic-filter updater-client	Shows information about the updater server, including the server IP address, the next time the ASA will connect with the server, and the database version last installed.
show running-config dynamic-filter	Shows the Botnet Traffic Filter running configuration.

dynamic-filter database purge

To manually delete the Botnet Traffic Filter dynamic database from running memory, use the **dynamic-filter database purge** command in privileged EXEC mode.

dynamic-filter database purge

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

The database files are stored in running memory; they are not stored in flash memory. If you need to delete the database, use the **dynamic-filter database purge** command.

Before you can purge the database files, disable use of the database using the **no dynamic-filter use-database** command.

Examples

The following example disables use of the database, and then purges the database:

```
hostname(config)# no dynamic-filter use-database
hostname(config)# dynamic-filter database purge
```

Related Commands

Command	Description
address	Adds an IP address to the blacklist or whitelist.
clear configure dynamic-filter	Clears the running Botnet Traffic Filter configuration.
clear dynamic-filter dns-snoop	Clears Botnet Traffic Filter DNS snooping data.
clear dynamic-filter reports	Clears Botnet Traffic filter report data.
clear dynamic-filter statistics	Clears Botnet Traffic filter statistics.

Command	Description
dns domain-lookup	Enables the ASA to send DNS requests to a DNS server to perform a name lookup for supported commands.
dns server-group	Identifies a DNS server for the ASA.
dynamic-filter ambiguous-is-black	Treats greylisted traffic as blacklisted traffic for action purposes.
dynamic-filter blacklist	Edits the Botnet Traffic Filter blacklist.
dynamic-filter database fetch	Manually retrieves the Botnet Traffic Filter dynamic database.
dynamic-filter database find	Searches the dynamic database for a domain name or IP address.
dynamic-filter drop blacklist	Automatically drops blacklisted traffic.
dynamic-filter enable	Enables the Botnet Traffic Filter for a class of traffic or for all traffic if you do not specify an access list.
dynamic-filter updater-client enable	Enables downloading of the dynamic database.
dynamic-filter use-database	Enables use of the dynamic database.
dynamic-filter whitelist	Edits the Botnet Traffic Filter whitelist.
inspect dns dynamic-filter-snoop	Enables DNS inspection with Botnet Traffic Filter snooping.
name	Adds a name to the blacklist or whitelist.
show asp table dynamic-filter	Shows the Botnet Traffic Filter rules that are installed in the accelerated security path.
show dynamic-filter data	Shows information about the dynamic database, including when the dynamic database was last downloaded, the version of the database, how many entries the database contains, and 10 sample entries.
show dynamic-filter dns-snoop	Shows the Botnet Traffic Filter DNS snooping summary, or with the **detail** keyword, the actual IP addresses and names.
show dynamic-filter reports	Generates reports of the top 10 botnet sites, ports, and infected hosts.
show dynamic-filter statistics	Shows how many connections were monitored with the Botnet Traffic Filter, and how many of those connections match the whitelist, blacklist, and greylist.
show dynamic-filter updater-client	Shows information about the updater server, including the server IP address, the next time the ASA will connect with the server, and the database version last installed.
show running-config dynamic-filter	Shows the Botnet Traffic Filter running configuration.

dynamic-filter drop blacklist

To automatically drop blacklisted traffic using the Botnet Traffic Filter, use the **dynamic-filter drop blacklist** command in global configuration mode. To disable the automatic dropping, use the **no** form of this command.

dynamic-filter drop blacklist [**interface** *name*] [**action-classify-list** *subset_access_list*] [**threat-level** {**eq** *level* | **range** *min max*}]

no dynamic-filter drop blacklist [**interface** *name*] [**action-classify-list** *subset_access_list*] [**threat-level** {**eq** *level* | **range** *min max*}]

Syntax Description

action-classify-list *sub_access_list*	(Optional) Identifies a subset of traffic that you want to drop . See the **access-list extended** command to create the access list. The dropped traffic must always be equal to or a subset of the monitored traffic identified by the **dynamic-filter enable** command. For example, if you specify an access list for the **dynamic-filter enable** command, and you specify the **action-classify-list** for this command, then it must be a subset of the **dynamic-filter enable** access list.
interface *name*	(Optional) Limits monitoring to a specific interface. The dropped traffic must always be equal to or a subset of the monitored traffic identified by the **dynamic-filter enable** command. Any interface-specific commands take precedence over the global command.
threat-level {**eq** *level* | **range** *min max*}	(Optional) Limits the traffic dropped by setting the threat level. If you do not explicitly set a threat level, the level used is **threat-level range moderate very-high**. **Note** We highly recommend using the default setting unless you have strong reasons for changing the setting. The *level* and *min* and *max* options are: • **very-low** • **low** • **moderate** • **high** • **very-high** **Note** Static blacklist entries are always designated with a Very High threat level.

Defaults

This command is disabled by default.

The default threat level is **threat-level range moderate very-high**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.2(2)	This command was introduced.

Usage Guidelines

Be sure to first configure a **dynamic-filter enable** command for any traffic you want to drop; the dropped traffic must always be equal to or a subset of the monitored traffic.

You can enter this command multiple times for each interface and global policy. Make sure you do not specify overlapping traffic in multiple commands for a given interface/global policy. Because you cannot control the exact order that commands are matched, overlapping traffic means you do not know which command will be matched. For example, do not specify both a command that matches all traffic (without the **action-classify-list** keyword) as well as a command with the **action-classify-list** keyword for a given interface. In this case, the traffic might never match the command with the **action-classify-list** keyword. Similarly, if you specify multiple commands with the **action-classify-list** keyword, make sure each access list is unique, and that the networks do not overlap.

Examples

The following example monitors all port 80 traffic on the outside interface, and then drops traffic at a threat level of moderate or greater:

```
hostname(config)# access-list dynamic-filter_acl extended permit tcp any any eq 80
hostname(config)# dynamic-filter enable interface outside classify-list dynamic-filter_acl
hostname(config)# dynamic-filter drop blacklist interface outside
```

Related Commands

Command	Description
address	Adds an IP address to the blacklist or whitelist.
clear configure dynamic-filter	Clears the running Botnet Traffic Filter configuration.
clear dynamic-filter dns-snoop	Clears Botnet Traffic Filter DNS snooping data.
clear dynamic-filter reports	Clears Botnet Traffic filter report data.
clear dynamic-filter statistics	Clears Botnet Traffic filter statistics.
dns domain-lookup	Enables the ASA to send DNS requests to a DNS server to perform a name lookup for supported commands.
dns server-group	Identifies a DNS server for the ASA.
dynamic-filter ambiguous-is-black	Treats greylisted traffic as blacklisted traffic for action purposes.
dynamic-filter blacklist	Edits the Botnet Traffic Filter blacklist.
dynamic-filter database fetch	Manually retrieves the Botnet Traffic Filter dynamic database.

Command	Description
dynamic-filter database find	Searches the dynamic database for a domain name or IP address.
dynamic-filter database purge	Manually deletes the Botnet Traffic Filter dynamic database.
dynamic-filter enable	Enables the Botnet Traffic Filter for a class of traffic or for all traffic if you do not specify an access list.
dynamic-filter updater-client enable	Enables downloading of the dynamic database.
dynamic-filter use-database	Enables use of the dynamic database.
dynamic-filter whitelist	Edits the Botnet Traffic Filter whitelist.
inspect dns dynamic-filter-snoop	Enables DNS inspection with Botnet Traffic Filter snooping.
name	Adds a name to the blacklist or whitelist.
show asp table dynamic-filter	Shows the Botnet Traffic Filter rules that are installed in the accelerated security path.
show dynamic-filter data	Shows information about the dynamic database, including when the dynamic database was last downloaded, the version of the database, how many entries the database contains, and 10 sample entries.
show dynamic-filter dns-snoop	Shows the Botnet Traffic Filter DNS snooping summary, or with the **detail** keyword, the actual IP addresses and names.
show dynamic-filter reports	Generates reports of the top 10 botnet sites, ports, and infected hosts.
show dynamic-filter statistics	Shows how many connections were monitored with the Botnet Traffic Filter, and how many of those connections match the whitelist, blacklist, and greylist.
show dynamic-filter updater-client	Shows information about the updater server, including the server IP address, the next time the ASA will connect with the server, and the database version last installed.
show running-config dynamic-filter	Shows the Botnet Traffic Filter running configuration.

dynamic-filter enable

To enable the Botnet Traffic Filter, use the **dynamic-filter enable** command in global configuration mode. To disable the Botnet Traffic Filter, use the **no** form of this command.

dynamic-filter enable [**interface** *name*] [**classify-list** *access_list*]

no dynamic-filter enable [**interface** *name*] [**classify-list** *access_list*]

Syntax Description

classify-list *access_list*	Identifies the traffic that you want to monitor using an extended access list (see the **access-list extended** command). If you do not create an access list, by default you monitor all traffic.
interface *name*	Limits monitoring to a specific interface.

Defaults

The Botnet Traffic Filter is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

The Botnet Traffic Filter compares the source and destination IP address in each initial connection packet to the IP addresses in the dynamic database, static database, DNS reverse lookup cache, and DNS host cache, and sends a syslog message or drops any matching traffic.

Malware is malicious software that is installed on an unknowing host. Malware that attempts network activity such as sending private data (passwords, credit card numbers, key strokes, or proprietary data) can be detected by the Botnet Traffic Filter when the malware starts a connection to a known bad IP address. The Botnet Traffic Filter checks incoming and outgoing connections against a dynamic database of known bad domain names and IP addresses, and then logs any suspicious activity. You can also supplement the dynamic database with a static database by entering IP addresses or domain names in a local “blacklist” or “whitelist.”

The DNS snooping is enabled separately (see the **inspect dns dynamic-filter-snoop** command). Typically, for maximum use of the Botnet Traffic Filter, you need to enable DNS snooping, but you can use Botnet Traffic Filter logging independently if desired. Without DNS snooping for the dynamic database, the Botnet Traffic Filter uses only the static database entries, plus any IP addresses in the dynamic database; domain names in the dynamic database are not used.

Botnet Traffic Filter Address Categories

Addresses monitored by the Botnet Traffic Filter include:

- Known malware addresses—These addresses are on the "blacklist."
- Known allowed addresses—These addresses are on the "whitelist."
- Ambiguous addresses—These addresses are associated with multiple domain names, but not all of these domain names are on the blacklist. These addresses are on the "greylist."
- Unlisted addresses—These addresses are unknown, and not included on any list.

Botnet Traffic Filter Actions for Known Addresses

You can configure the Botnet Traffic Filter to log suspicious activity using the **dynamic-filter enable** conmmand, and you can optionally configure it to block suspicious traffic automatically using the **dynamic-filter drop blacklist** command.

Unlisted addresses do not generate any syslog messages, but addresses on the blacklist, whitelist, and greylist generate syslog messages differentiated by type. The Botnet Traffic Filter generates detailed syslog messages numbered 338*nnn*. Messages differentiate between incoming and outgoing connections, blacklist, whitelist, or greylist addresses, and many other variables. (The greylist includes addresses that are associated with multiple domain names, but not all of these domain names are on the blacklist.)

See the syslog messages guide for detailed information about syslog messages.

Examples

The following example monitors all port 80 traffic on the outside interface, and then drops traffic at a threat level of moderate or greater:

```
hostname(config)# access-list dynamic-filter_acl extended permit tcp any any eq 80
hostname(config)# dynamic-filter enable interface outside classify-list dynamic-filter_acl
hostname(config)# dynamic-filter drop blacklist interface outside
```

Related Commands

Command	Description
address	Adds an IP address to the blacklist or whitelist.
clear configure dynamic-filter	Clears the running Botnet Traffic Filter configuration.
clear dynamic-filter dns-snoop	Clears Botnet Traffic Filter DNS snooping data.
clear dynamic-filter reports	Clears Botnet Traffic filter report data.
clear dynamic-filter statistics	Clears Botnet Traffic filter statistics.
dns domain-lookup	Enables the ASA to send DNS requests to a DNS server to perform a name lookup for supported commands.
dns server-group	Identifies a DNS server for the ASA.
dynamic-filter ambiguous-is-black	Treats greylisted traffic as blacklisted traffic for action purposes.
dynamic-filter blacklist	Edits the Botnet Traffic Filter blacklist.
dynamic-filter database fetch	Manually retrieves the Botnet Traffic Filter dynamic database.
dynamic-filter database find	Searches the dynamic database for a domain name or IP address.
dynamic-filter database purge	Manually deletes the Botnet Traffic Filter dynamic database.
dynamic-filter drop blacklist	Automatically drops blacklisted traffic.

Command	Description
dynamic-filter updater-client enable	Enables downloading of the dynamic database.
dynamic-filter use-database	Enables use of the dynamic database.
dynamic-filter whitelist	Edits the Botnet Traffic Filter whitelist.
inspect dns dynamic-filter-snoop	Enables DNS inspection with Botnet Traffic Filter snooping.
name	Adds a name to the blacklist or whitelist.
show asp table dynamic-filter	Shows the Botnet Traffic Filter rules that are installed in the accelerated security path.
show dynamic-filter data	Shows information about the dynamic database, including when the dynamic database was last downloaded, the version of the database, how many entries the database contains, and 10 sample entries.
show dynamic-filter dns-snoop	Shows the Botnet Traffic Filter DNS snooping summary, or with the **detail** keyword, the actual IP addresses and names.
show dynamic-filter reports	Generates reports of the top 10 botnet sites, ports, and infected hosts.
show dynamic-filter statistics	Shows how many connections were monitored with the Botnet Traffic Filter, and how many of those connections match the whitelist, blacklist, and greylist.
show dynamic-filter updater-client	Shows information about the updater server, including the server IP address, the next time the ASA will connect with the server, and the database version last installed.
show running-config dynamic-filter	Shows the Botnet Traffic Filter running configuration.

dynamic-filter updater-client enable

To enable downloading of the dynamic database from the Cisco update server for the Botnet Traffic Filter, use the **dynamic-filter updater-client enable** command in global configuration mode. To disable downloading of the dynamic database, use the **no** form of this command.

dynamic-filter updater-client enable

no dynamic-filter updater-client enable

Syntax Description

This command has no arguments or keywords.

Defaults

Downloading is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

If you do not have a database already installed on the ASA, it downloads the database after approximately 2 minutes. The update server determines how often the ASA polls the server for future updates, typically every hour.

The Botnet Traffic Filter can receive periodic updates for the dynamic database from the Cisco update server.

This database lists thousands of known bad domain names and IP addresses. When the domain name in a DNS reply matches a name in the dynamic database, the Botnet Traffic Filter adds the name and IP address to the *DNS reverse lookup cache*. When the infected host starts a connection to the IP address of the malware site, then the ASA sends a syslog message informing you of the suspicious activity.

To use the database, be sure to configure a domain name server for the ASA so that it can access the URL. To use the domain names in the dynamic database, you need to enable DNS packet inspection with Botnet Traffic Filter snooping; the ASA looks inside the DNS packets for the domain name and associated IP address.

In some cases, the IP address itself is supplied in the dynamic database, and the Botnet Traffic Filter logs any traffic to that IP address without having to inspect DNS requests.

The database files are stored in running memory; they are not stored in flash memory. If you need to delete the database, use the **dynamic-filter database purge** command.

Note This command requires ASA use of a DNS server; see the **dns domain-lookup** and **dns server-group** commands.

Examples

The following multiple mode example enables downloading of the dynamic database, and enables use of the database in context1 and context2:

```
hostname(config)# dynamic-filter updater-client enable
hostname(config)# changeto context context1
hostname/context1(config)# dynamic-filter use-database
hostname/context1(config)# changeto context context2
hostname/context2(config)# dynamic-filter use-database
```

The following single mode example enables downloading of the dynamic database, and enables use of the database:

```
hostname(config)# dynamic-filter updater-client enable
hostname(config)# dynamic-filter use-database
```

Related Commands

Command	Description
address	Adds an IP address to the blacklist or whitelist.
clear configure dynamic-filter	Clears the running Botnet Traffic Filter configuration.
clear dynamic-filter dns-snoop	Clears Botnet Traffic Filter DNS snooping data.
clear dynamic-filter reports	Clears Botnet Traffic filter report data.
clear dynamic-filter statistics	Clears Botnet Traffic filter statistics.
dns domain-lookup	Enables the ASA to send DNS requests to a DNS server to perform a name lookup for supported commands.
dns name-server	Identifies a DNS server for the ASA.
dynamic-filter ambiguous-is-black	Treats greylisted traffic as blacklisted traffic for action purposes.
dynamic-filter blacklist	Edits the Botnet Traffic Filter blacklist.
dynamic-filter database fetch	Manually retrieves the Botnet Traffic Filter dynamic database.
dynamic-filter database find	Searches the dynamic database for a domain name or IP address.
dynamic-filter database purge	Manually deletes the Botnet Traffic Filter dynamic database.
dynamic-filter drop blacklist	Automatically drops blacklisted traffic.
dynamic-filter enable	Enables the Botnet Traffic Filter for a class of traffic or for all traffic if you do not specify an access list.
dynamic-filter use-database	Enables use of the dynamic database.
dynamic-filter whitelist	Edits the Botnet Traffic Filter whitelist.
inspect dns dynamic-filter-snoop	Enables DNS inspection with Botnet Traffic Filter snooping.
name	Adds a name to the blacklist or whitelist.

Command	Description
show asp table dynamic-filter	Shows the Botnet Traffic Filter rules that are installed in the accelerated security path.
show dynamic-filter data	Shows information about the dynamic database, including when the dynamic database was last downloaded, the version of the database, how many entries the database contains, and 10 sample entries.
show dynamic-filter dns-snoop	Shows the Botnet Traffic Filter DNS snooping summary, or with the **detail** keyword, the actual IP addresses and names.
show dynamic-filter reports	Generates reports of the top 10 botnet sites, ports, and infected hosts.
show dynamic-filter statistics	Shows how many connections were monitored with the Botnet Traffic Filter, and how many of those connections match the whitelist, blacklist, and greylist.
show dynamic-filter updater-client	Shows information about the updater server, including the server IP address, the next time the ASA will connect with the server, and the database version last installed.
show running-config dynamic-filter	Shows the Botnet Traffic Filter running configuration.

dynamic-filter use-database

To enable use of the dynamic database for the Botnet Traffic Filter, use the **dynamic-filter use-database** command in global configuration mode. To disable use of the dynamic database, use the **no** form of this command.

dynamic-filter use-database

no dynamic-filter use-database

Syntax Description

This command has no arguments or keywords.

Defaults

Use of the database is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

Disabling use of the downloaded database is useful in multiple context mode, so you can configure use of the database on a per-context basis. To enable downloading of the dynamic database, see the **dynamic-filter updater-client enable** command.

Examples

The following multiple mode example enables downloading of the dynamic database, and enables use of the database in context1 and context2:

```
hostname(config)# dynamic-filter updater-client enable
hostname(config)# changeto context context1
hostname/context1(config)# dynamic-filter use-database
hostname/context1(config)# changeto context context2
hostname/context2(config)# dynamic-filter use-database
```

The following single mode example enables downloading of the dynamic database, and enables use of the database:

```
hostname(config)# dynamic-filter updater-client enable
hostname(config)# dynamic-filter use-database
```

Related Commands

Command	Description
address	Adds an IP address to the blacklist or whitelist.
clear configure dynamic-filter	Clears the running Botnet Traffic Filter configuration.
clear dynamic-filter dns-snoop	Clears Botnet Traffic Filter DNS snooping data.
clear dynamic-filter reports	Clears Botnet Traffic filter report data.
clear dynamic-filter statistics	Clears Botnet Traffic filter statistics.
dns domain-lookup	Enables the ASA to send DNS requests to a DNS server to perform a name lookup for supported commands.
dns server-group	Identifies a DNS server for the ASA.
dynamic-filter ambiguous-is-black	Treats greylisted traffic as blacklisted traffic for action purposes.
dynamic-filter blacklist	Edits the Botnet Traffic Filter blacklist.
dynamic-filter database fetch	Manually retrieves the Botnet Traffic Filter dynamic database.
dynamic-filter database find	Searches the dynamic database for a domain name or IP address.
dynamic-filter database purge	Manually deletes the Botnet Traffic Filter dynamic database.
dynamic-filter drop blacklist	Automatically drops blacklisted traffic.
dynamic-filter enable	Enables the Botnet Traffic Filter for a class of traffic or for all traffic if you do not specify an access list.
dynamic-filter updater-client enable	Enables downloading of the dynamic database.
dynamic-filter whitelist	Edits the Botnet Traffic Filter whitelist.
inspect dns dynamic-filter-snoop	Enables DNS inspection with Botnet Traffic Filter snooping.
name	Adds a name to the blacklist or whitelist.
show asp table dynamic-filter	Shows the Botnet Traffic Filter rules that are installed in the accelerated security path.
show dynamic-filter data	Shows information about the dynamic database, including when the dynamic database was last downloaded, the version of the database, how many entries the database contains, and 10 sample entries.
show dynamic-filter dns-snoop	Shows the Botnet Traffic Filter DNS snooping summary, or with the **detail** keyword, the actual IP addresses and names.
show dynamic-filter reports	Generates reports of the top 10 botnet sites, ports, and infected hosts.
show dynamic-filter statistics	Shows how many connections were monitored with the Botnet Traffic Filter, and how many of those connections match the whitelist, blacklist, and greylist.
show dynamic-filter updater-client	Shows information about the updater server, including the server IP address, the next time the ASA will connect with the server, and the database version last installed.
show running-config dynamic-filter	Shows the Botnet Traffic Filter running configuration.

dynamic-filter whitelist

To edit the Botnet Traffic Filter whitelist, use the **dynamic-filter whitelist** command in global configuration mode. To remove the whitelist, use the **no** form of this command.

dynamic-filter whitelist

no dynamic-filter whitelist

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

The static database lets you augment the dynamic database with domain names or IP addresses that you want to whitelist. After you enter the dynamic-filter whitelist configuration mode, you can manually enter domain names or IP addresses (host or subnet) that you want to tag as good names in a whitelist using the **address** and **name** commands. Names or addresses that appear on both the dynamic blacklist and static whitelist are identified only as whitelist addresses in syslog messages and reports. Note that you see syslog messages for whitelisted addresses even if the address is not also in the dynamic blacklist. You can enter names or IP addresses in the static blacklist using the **dynamic-filter blacklist** command.

When you add a domain name to the static database, the ASA waits 1 minute, and then sends a DNS request for that domain name and adds the domain name/IP address pairing to the *DNS host cache*. (This action is a background process, and does not affect your ability to continue configuring the ASA). We recommend also enabling DNS packet inspection with Botnet Traffic Filter snooping (see the **inspect dns dynamic-filter-snooping** command). The ASA uses Botnet Traffic Filter snooping instead of the regular DNS lookup to resolve static blacklist domain names in the following circumstances:

- The ASA DNS server is unavailable.
- A connection is initiated during the 1 minute waiting period before the ASA sends the regular DNS request.

If DNS snooping is used, when an infected host sends a DNS request for a name on the static database, the ASA looks inside the DNS packets for the domain name and associated IP address and adds the name and IP address to the DNS reverse lookup cache.

If you do not enable Botnet Traffic Filter snooping, and one of the above circumstances occurs, then that traffic will not be monitored by the Botnet Traffic Filter.

Note This command requires ASA use of a DNS server; see the **dns domain-lookup** and **dns server-group** commands.

Examples

The following example creates entries for the blacklist and whitelist:

```
hostname(config)# dynamic-filter blacklist
hostname(config-llist)# name bad1.example.com
hostname(config-llist)# name bad2.example.com
hostname(config-llist)# address 10.1.1.1 255.255.255.0

hostname(config-llist)# dynamic-filter whitelist
hostname(config-llist)# name good.example.com
hostname(config-llist)# name great.example.com
hostname(config-llist)# name awesome.example.com
hostname(config-llist)# address 10.1.1.2 255.255.255.255
```

Related Commands

Command	Description
address	Adds an IP address to the blacklist or whitelist.
clear configure dynamic-filter	Clears the running Botnet Traffic Filter configuration.
clear dynamic-filter dns-snoop	Clears Botnet Traffic Filter DNS snooping data.
clear dynamic-filter reports	Clears Botnet Traffic filter report data.
clear dynamic-filter statistics	Clears Botnet Traffic filter statistics.
dns domain-lookup	Enables the ASA to send DNS requests to a DNS server to perform a name lookup for supported commands.
dns server-group	Identifies a DNS server for the ASA.
dynamic-filter ambiguous-is-black	Treats greylisted traffic as blacklisted traffic for action purposes.
dynamic-filter blacklist	Edits the Botnet Traffic Filter blacklist.
dynamic-filter database fetch	Manually retrieves the Botnet Traffic Filter dynamic database.
dynamic-filter database find	Searches the dynamic database for a domain name or IP address.
dynamic-filter database purge	Manually deletes the Botnet Traffic Filter dynamic database.
dynamic-filter drop blacklist	Automatically drops blacklisted traffic.
dynamic-filter enable	Enables the Botnet Traffic Filter for a class of traffic or for all traffic if you do not specify an access list.
dynamic-filter updater-client enable	Enables downloading of the dynamic database.
dynamic-filter use-database	Enables use of the dynamic database.
inspect dns dynamic-filter-snoop	Enables DNS inspection with Botnet Traffic Filter snooping.
name	Adds a name to the blacklist or whitelist.
show asp table dynamic-filter	Shows the Botnet Traffic Filter rules that are installed in the accelerated security path.

Command	Description
show dynamic-filter data	Shows information about the dynamic database, including when the dynamic database was last downloaded, the version of the database, how many entries the database contains, and 10 sample entries.
show dynamic-filter dns-snoop	Shows the Botnet Traffic Filter DNS snooping summary, or with the **detail** keyword, the actual IP addresses and names.
show dynamic-filter reports	Generates reports of the top 10 botnet sites, ports, and infected hosts.
show dynamic-filter statistics	Shows how many connections were monitored with the Botnet Traffic Filter, and how many of those connections match the whitelist, blacklist, and greylist.
show dynamic-filter updater-client	Shows information about the updater server, including the server IP address, the next time the ASA will connect with the server, and the database version last installed.
show running-config dynamic-filter	Shows the Botnet Traffic Filter running configuration.

CHAPTER 20

eigrp log-neighbor-changes through export webvpn webcontent Commands

eigrp log-neighbor-changes

To enable the logging of EIGRP neighbor adjacency changes, use the **eigrp log-neighbor-changes** command in router configuration mode. To turn off this function, use the **no** form of this command.

eigrp log-neighbor-changes

no eigrp log-neighbor-changes

Syntax Description

This command has no arguments or keywords.

Defaults

This command is enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

The **eigrp log-neighbor-changes** command is enabled by default; only the **no** form of the command appears in the running configuration.

Examples

The following example disables the logging of EIGRP neighbor changes:

```
hostname(config)# router eigrp 100
hostname(config-router)# no eigrp log-neighbor-changes
```

Related Commands

Command	Description
eigrp log-neighbor-warnings	Enables logging of neighbor warning messages.
router eigrp	Enters router configuration mode for the EIGRP routing process.
show running-config router	Displays the commands in the global router configuration.

eigrp log-neighbor-warnings

To enable the logging of EIGRP neighbor warning messages, use the **eigrp log-neighbor-warnings** command in router configuration mode. To turn off this function, use the **no** form of this command.

eigrp log-neighbor-warnings [*seconds*]

no eigrp log-neighbor-warnings

Syntax Description

seconds	(Optional) The time interval (in seconds) between repeated neighbor warning messages. Valid values are from 1 to 65535. Repeated warnings are not logged if they occur during this interval.

Defaults

This command is enabled by default. All neighbor warning messages are logged.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

The **eigrp log-neighbor-warnings** command is enabled by default; only the **no** form of the command appears in the running configuration.

Examples

The following example disables the logging of EIGRP neighbor warning messages:

```
hostname(config)# router eigrp 100
hostname(config-router)# no eigrp log-neighbor-warnings
```

The following example logs EIGRP neighbor warning messages and repeats the warning messages in 5-minute (300 seconds) intervals:

```
hostname(config)# router eigrp 100
hostname(config-router)# eigrp log-neighbor-warnings 300
```

Related Commands

Command	Description
eigrp log-neighbor-messages	Enables the logging of changes in EIGRP neighbor adjacencies.
router eigrp	Enters router configuration mode for the EIGRP routing process.
show running-config router	Displays the commands in the global router configuration.

eigrp router-id

To specify router ID used by the EIGRP routing process, use the **eigrp router-id** command in router configuration mode. To restore the default value, use the **no** form of this command.

eigrp router-id *ip-addr*

no eigrp router-id [*ip-addr*]

Syntax Description

ip-addr	Router ID in IP address (dotted-decimal) format. You cannot use 0.0.0.0 or 255.255.255.255 as the router ID.

Defaults

If not specified, the highest-level IP address on the ASA is used as the router ID.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

If the **eigrp router-id** command is not configured, EIGRP automatically selects the highest IP address on the ASA to use as the router ID when an EIGRP process is started. The router ID is not changed unless the EIGRP process is removed using the **no router eigrp** command or unless the router ID is manually configured with the **eigrp router-id** command.

The router ID is used to identify the originating router for external routes. If an external route is received with the local router ID, the route is discarded. To prevent this, use the **eigrp router-id** command to specify a global address for the router ID.

A unique value should be configured for each EIGRP router.

Examples

The following example configures 172.16.1.3 as a fixed router ID for the EIGRP routing process:

```
hostname(config)# router eigrp 100
hostname(config-router)# eigrp router-id 172.16.1.3
```

Related Commands

Command	Description
router eigrp	Enters router configuration mode for the EIGRP routing process.
show running-config router	Displays the commands in the global router configuration.

eigrp stub

To configure the EIGRP routing process as a stub routing process, use the **eigrp stub** command in router configuration mode. To remove EIGRP stub routing, use the **no** form of this command.

eigrp stub [**receive-only**] | {[**connected**] [**redistributed**] [**static**] [**summary**]}

no eigrp stub [**receive-only**] | {[**connected**] [**redistributed**] [**static**] [**summary**]}

Syntax Description

connected	(Optional) Advertises connected routes.
receive-only	(Optional) Sets the ASA as a received-only neighbor.
redistributed	(Optional) Advertises routes redistributed from other routing protocols.
static	(Optional) Advertises static routes.
summary	(Optional) Advertises summary routes.

Defaults

Stub routing is not enabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

Use the **eigrp stub** command to configure the ASA as a stub where the ASA directs all IP traffic to a distribution router.

Using the **receive-only** keyword restricts the ASA from sharing any of its routes with any other router in the autonomous system; the ASA only receives updates from the EIGRP neighbor. You cannot use any other keyword with the **receive-only** keyword.

You can specify one or more of the **connected**, **static**, **summary**, and **redistributed** keywords. If any of these keywords is used with the **eigrp stub** command, only the route types specified by the particular keyword are sent.

The **connected** keyword permits the EIGRP stub routing process to send connected routes. If the connected routes are not covered by a **network** statement, it may be necessary to redistribute connected routes with the **redistribute** command under the EIGRP process.

The **static** keyword permits the EIGRP stub routing process to send static routes. Without the configuration of this option, EIGRP will not send any static routes, including internal static routes that normally would be automatically redistributed. You must still redistribute static routes using the **redistribute static** command.

The **summary** keyword permits the EIGRP stub routing process to send summary routes. You can create summary routes manually with the **summary-address eigrp** command or automatically with the **auto-summary** command enabled (this command is enabled by default).

The **redistributed** keyword permits the EIGRP stub routing process to send routes redistributed into the EIGRP routing process from other routing protocols. If you do you configure this option, EIGRP does not advertise redistributed routes.

Examples

The following example uses the **eigrp stub** command to configure the ASA as an EIGRP stub that advertises connected and summary routes:

```
hostname(config)# router eigrp 100
hostname(config-router)# network 10.0.0.0
hostname(config-router)# eigrp stub connected summary
```

The following example uses the **eigrp stub** command to configure the ASA as an EIGRP stub that advertises connected and static routes. Sending summary routes is not permitted.

```
hostname(config)# router eigrp 100
hostname(config-router)# network 10.0.0.0
hostname(config-router)# eigrp stub connected static
```

The following example uses the **eigrp stub** command to configure the ASA as an EIGRP stub that only receives EIGRP updates. Connected, summary, and static route information is not sent.

```
hostname(config)# router eigrp 100
hostname(config-router)# network 10.0.0.0 eigrp
hostname(config-router)# eigrp stub receive-only
```

The following example uses the **eigrp stub** command to configure the ASA as an EIGRP stub that advertises routes redistributed into EIGRP from other routing protocols:

```
hostname(config)# router eigrp 100
hostname(config-router)# network 10.0.0.0
hostname(config-router)# eigrp stub redistributed
```

The following example uses the **eigrp stub** command without any of the optional arguments. When used without arugments, the **eigrp stub** commands advertises connected and static routes by default.

```
hostname(config)# router eigrp 100
hostname(config-router)# network 10.0.0.0
hostname(config-router)# eigrp stub
```

Related Commands

Command	Description
router eigrp	Clears the EIGRP router configuration mode commands from the running configuration.
show running-config router eigrp	Displays the EIGRP router configuration mode commands in the running configuration.

eject

To support the removal of an ASA external compact flash device, use the **eject** command in user EXEC mode.

eject [**/noconfirm**] *disk1:*

Syntax Description

disk1:	Specifies the device to eject.
/noconfirm	Specifies that you do not need to confirm device removal before physically removing the external flash device from the ASA.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
User EXEC	•	•	•	•	•

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

The **eject** command allows you to safely remove a compact flash device from an ASA 5500 series.

The following example shows how to use the **eject** command to shut down *disk1* gracefully before the device is physically removed from the ASA:

```
hostname# eject /noconfig disk1:
It is now safe to remove disk1:
hostname# show version
Cisco Adaptive Security Appliance Software Version 8.0(2)34

Compiled on Fri 18-May-07 10:28 by juser System image file is "disk0:/cdisk.asa"
Config file at boot was "startup-config"

wef5520 up 5 hours 36 mins

Hardware:   ASA5520, 512 MB RAM, CPU Pentium 4 Celeron 2000 MHz
Internal ATA Compact Flash, 256MB
Slot 1: Compact Flash has been ejected!
It may be removed and a new device installed.
BIOS Flash M50FW016 @ 0xffe00000, 2048KB
<---More--->
```

Related Commands

Command	Description
show version	Displays information about the operating system software.

email

To include the indicated e-mail address in the Subject Alternative Name extension of the certificate during enrollment, use the **email** command in crypto ca-trustpoint configuration mode. To restore the default setting, use the **no** form of this command.

email *address*

no email

Syntax Description

address	Specifies the e-mail address. The maximum length is 64 characters.

Defaults

The default setting is not set.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Crypto ca-trustpoint configuration	•	•	•		

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example enters crypto ca-trustpoint configuration mode for the trustpoint central, and includes the e-mail address user1@user.net in the enrollment request for the trustpoint central:

```
hostname(config)# crypto ca-trustpoint central
hostname(ca-trustpoint)# email user1@user.net
hostname(ca-trustpoint)#
```

Related Commands

Command	Description
crypto ca-trustpoint	Enters crypto ca-trustpoint configuration mode.

enable

To enter privileged EXEC mode, use the **enable** command in user EXEC mode.

enable [*level*]

Syntax Description

level	(Optional) The privilege level between 0 and 15. Not used with enable authentication (the **aaa authentication enable console** command).

Defaults

Enters privilege level 15 unless you are using enable authentication (using the **aaa authentication enable console** command), in which case the default level depends on the level configured for your username.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
User EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The default enable password is blank. See the **enable password** command to set the password.

Without enable authentication, when you enter the **enable** command, your username changes to enable_*level*, where the default level is 15. With enable authentication (using the **aaa authentication enable console** command), the username and associated level are preserved. Preserving the username is important for command authorization (the **aaa authorization command** command, using either local or TACACS+).

Levels 2 and above enter privileged EXEC mode. Levels 0 and 1 enter user EXEC mode. To use levels in between, enable local command authorization (the **aaa authorization command LOCAL** command) and set the commands to different privilege levels using the **privilege** command. TACACS+ command authorization does not use the privilege levels configured on the ASA.

See the **show curpriv** command to view your current privilege level.

Enter the **disable** command to exit privileged EXEC mode.

Examples

The following example enters privileged EXEC mode:

```
hostname> enable
Password: Pa$$w0rd
hostname#
```

The following example enters privileged EXEC mode for level 10:

```
hostname> enable 10
Password: Pa$$w0rd10
hostname#
```

Related Commands

Command	Description
enable password	Sets the enable password.
disable	Exits privileged EXEC mode.
aaa authorization command	Configures command authorization.
privilege	Sets the command privilege levels for local command authorization.
show curpriv	Shows the currently logged in username and the user privilege level.

enable (webvpn)

To enable WebVPN or e-mail proxy access on a previously configured interface, use the **enable** command. For WebVPN, use this command in webvpn configuration mode. For e-mail proxies (IMAP4S. POP3S, and SMTPS), use this command in the applicable e-mail proxy configuration mode. To disable WebVPN on an interface, use the **no** form of the command.

enable *ifname*

no enable

Syntax Description

ifname	Identifies the previously configured interface. Use the **nameif** command to configure interfaces.

Defaults

WebVPN is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Imap4s configuration	•	—	•	—	—
Pop3s configuration	•	—	•	—	—
Smtps configuration	•	—	•	—	—
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to enable WebVPN on the interface named Outside:

```
hostname(config)# webvpn
hostname(config-webvpn)# enable Outside
```

The following example shows how to configure POP3S e-mail proxy on the interface named Outside:

```
hostname(config)# pop3s
hostname(config-pop3s)# enable Outside
```

enable (cluster group)

To enable clustering, use the **enable** command in cluster group configuration mode. To disable clustering, use the **no** form of this command.

enable [**as-slave** | **noconfirm**]

no enable

Syntax Description

as-slave	(Optional) Enables clustering without checking the running configuration for incompatible commands and ensures that the slave joins the cluster with no possibility of becoming the master in any current election. Its configuration is overwritten with the one synced from the master unit.
noconfirm	(Optional) When you enter the **enable** command, the ASA scans the running configuration for incompatible commands for features that are not supported with clustering, including commands that may be present in the default configuration. You are prompted to delete the incompatible commands. If you respond **No**, then clustering is not enabled. Use the **noconfirm** keyword to bypass the confirmation and delete incompatible commands automatically.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Cluster group configuration	•	•	•	—	•

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

For the first unit enabled, a master unit election occurs. Because the first unit should be the only member of the cluster so far, it will become the master unit. Do not perform any configuration changes during this period.

If you already have a master unit, and are adding slave units to the cluster, you can avoid any configuration incompatibilities (primarily the existence of any interfaces not yet configured for clustering) by using the **enable as-slave** command.

To disable clustering, enter the **no enable** command.

Note If you disable clustering, all data interfaces are shut down, and only the management interface is active. If you want to remove the unit from the cluster entirely (and thus want to have active data interfaces), you need to remove the entire cluster group configuration.

Examples

The following example enables clustering and removes incopatible configuration:

```
hostname(config)# cluster group cluster1
hostname(cfg-cluster)# enable
INFO: Clustering is not compatible with following commands:
policy-map global_policy
 class inspection_default
 inspect skinny
policy-map global_policy
 class inspection_default
  inspect sip
 Would you like to remove these commands? [Y]es/[N]o:Y

INFO: Removing incompatible commands from running configuration...
Cryptochecksum (changed): f16b7fc2 a742727e e40bc0b0 cd169999
INFO: Done
```

Related Commands

Command	Description
clacp system-mac	When using spanned EtherChannels, the ASA uses cLACP to negotiate the EtherChannel with the neighbor switch.
cluster group	Names the cluster and enters cluster configuration mode.
cluster-interface	Specifies the cluster control link interface.
cluster interface-mode	Sets the cluster interface mode.
conn-rebalance	Enables connection rebalancing.
console-replicate	Enables console replication from slave units to the master unit.
health-check	Enables the cluster health check feature, which includes unit health monitoring and interface health monitoring.
key	Sets an authentication key for control traffic on the cluster control link.
local-unit	Names the cluster member.
mtu cluster-interface	Specifies the maximum transmission unit for the cluster control link interface.
priority (cluster group)	Sets the priority of this unit for master unit elections.

enable gprs

To enable GPRS with RADIUS accounting, use the **enable gprs** command in radius-accounting parameter configuration mode. To disable this command, use the **no** form of this command.

enable gprs

no enable gprs

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Radius-accounting parameter configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command is accessed by using the **inspect radius-accounting** command. The ASA checks for the 3GPP VSA 26-10415 in the Accounting-Request Stop messages to correctly handle secondary PDP contexts. This option is disabled by default. A GTP license is required to enable this feature.

Examples

The following example shows how to enable GPRS with RADIUS accounting:

```
hostname(config)# policy-map type inspect radius-accounting ra
hostname(config-pmap)# parameters
hostname(config-pmap-p)# enable gprs
```

Related Commands

Commands	Description
inspect radius-accounting	Sets inspection for RADIUS accounting.
parameters	Sets parameters for an inspection policy map.

enable password

To set the enable password for privileged EXEC mode, use the **enable password** command in global configuration mode. To remove the password for a level other than 15, use the **no** form of this command.

enable password *password* [**level** *level*] [**encrypted**]

no enable password level *level*

Syntax Description

encrypted	(Optional) Specifies that the password is in encrypted form. The password is saved in the configuration in encrypted form, so you cannot view the original password after you enter it. If for some reason you need to copy the password to another ASA but do not know the original password, you can enter the **enable password** command with the encrypted password and this keyword. Normally, you only see this keyword when you enter the **show running-config enable** command.
level *level*	(Optional) Sets a password for a privilege level between 0 and 15.
password	Sets the password as a case-sensitive string of 3 to 32 alphanumeric and special characters. You can use any character in the password except a question mark or a space.

Defaults

The default password is blank. The default level is 15.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The default password for enable level 15 (the default level) is blank. To reset the password to be blank, do not enter any text for the *password* argument.You cannot remove the level 15 password.

For multiple context mode, you can create an enable password for the system configuration as well as for each context.

To use privilege levels other than the default of 15, configure local command authorization (see the **aaa authorization command** command and specify the **LOCAL** keyword), and set the commands to different privilege levels using the **privilege** command. If you do not configure local command authorization, the enable levels are ignored, and you have access to level 15 regardless of the level you set. See the **show curpriv** command to view your current privilege level.

Levels 2 and above enter privileged EXEC mode. Levels 0 and 1 enter user EXEC mode.

Examples

The following example sets the enable password to Pa$$w0rd:

```
hostname(config)# enable password Pa$$w0rd
```

The following example sets the enable password to Pa$$w0rd10 for level 10:

```
hostname(config)# enable password Pa$$w0rd10 level 10
```

The following example sets the enable password to an encrypted password that you copied from another ASA:

```
hostname(config)# enable password jMorNbK0514fadBh encrypted
```

Related Commands

Command	Description
aaa authorization command	Configures command authorization.
enable	Enters privileged EXEC mode.
privilege	Sets the command privilege levels for local command authorization.
show curpriv	Shows the currently logged in username and the user privilege level.
show running-config enable	Shows the enable passwords in encrypted form.

encryption

To specify the encryption algorithm in an IKEv2 security association (SA) for AnyConnect IPsec connections, use the **encryption** command in ikev2 policy configuration mode. To remove the command and use the default setting, use the **no** form of this command:

encryption [**des** | **3des** | **aes** | **aes-192** | **aes-256** | **aes-gcm** | **aes-gcm-192** | **aes-gcm-256** | **null**]

no encryption [**des** | **3des** | **aes** | **aes-192** | **aes-256** | **aes-gcm** | **aes-gcm-192** | **aes-gcm-256** | **null**]

Syntax Description

des	Specifies 56-bit DES-CBC encryption for ESP.
3des	(Default) Specifies the triple DES encryption algorithm for ESP.
aes	Specifies AES with a 128-bit key encryption for ESP.
aes-192	Specifies AES with a 192-bit key encryption for ESP.
aes-256	Specifies AES with a 256-bit key encryption for ESP.
aes-gcm	Specifies AES-GCM algorithm for IKEv2 encryption.
aes-gcm-192	Specifies AES-GCM algorithm for IKEv2 encryption.
aes-gcm-256	Specifies AES-GCM algorithm for IKEv2 encryption.
null	Choose null integrity algorithm if AES-GCM/GMAC is configured as the encryption algorithm.

Defaults

The default is 3DES.

Usage Guidelines

An IKEv2 SA is a key used in Phase 1 to enable IKEv2 peers to communicate securely in Phase 2. After entering the **crypto ikev2 policy** command, you can use the **encryption** command to set the SA encryption algorithm.

When OSPFv3 encryption is enabled on an interface, a delay may occur when you establish adjacencies while the IPsec tunnel is configured. Use the **show crypto sockets**, **show ipsec policy**, and **show ipsec sa** commands to determine the underlying IPsec tunnel status and to confirm that processing is occurring.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ikev2-policy configuration	•	—	•	—	—

Command History

Release	Modification
8.4(1)	This command was added.
9.0(1)	Added the AES-GCM algorithm to use for IKEv2 encryption.

Examples

The following example enters ikev2-policy configuration mode and sets the encryption to AES-256:

```
hostname(config)# crypto ikev2 policy 1
hostname(config-ikev2-policy)# encryption aes-256
```

Related Commands

Command	Description
group	Specifies the Diffie-Hellman group in an IKEv2 SA for AnyConnect IPsec connections.
integrity	Specifies the ESP integrity algorithm in an IKEv2 SA for AnyConnect IPsec connections.
prf	Specifies the pseudo-random function in an IKEv2 SA for AnyConnect IPsec connections.
lifetime	Specifies the SA lifetime for the IKEv2 SA for AnyConnect IPsec connections.

endpoint

To add an endpoint to an HSI group for H.323 protocol inspection, use the **endpoint** command in hsi group configuration mode. To disable this feature, use the **no** form of this command.

endpoint *ip_address if_name*

no endpoint *ip_address if_name*

Syntax Description

if_name	The interface through which the endpoint is connected to the ASA.
ip_address	The IP address of the endpoint to add. A maximum of ten endpoints per HSI group is allowed.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Hsi-group configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to add endpoints to an HSI group in an H.323 inspection policy map:

```
hostname(config-pmap-p)# hsi-group 10
hostname(config-h225-map-hsi-grp)# endpoint 10.3.6.1 inside
hostname(config-h225-map-hsi-grp)# endpoint 10.10.25.5 outside
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
hsi-group	Creates an HSI group.
hsi	Adds an HSI to the HSI group.
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

endpoint-mapper

To configure endpoint mapper options for DCERPC inspection, use the **endpoint-mapper** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

endpoint-mapper [**epm-service-only**] [**lookup-operation** [**timeout** *value*]]

no endpoint-mapper [**epm-service-only**] [**lookup-operation** [**timeout** *value*]]

Syntax Description

epm-service-only	Specifies to enforce endoint mapper service during binding.
lookup-operation	Specifies to enable lookup operation of the endpoint mapper service.
timeout *value*	Specifies the timeout for pinholes from the lookup operation. The range is from 0:0:1 to 1193:0:0.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to configure the endpoint mapper in a DCERPC policy map:

```
hostname(config)# policy-map type inspect dcerpc dcerpc_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# endpoint-mapper epm-service-only
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

enforcenextupdate

To specify how to handle the NextUpdate CRL field, use the **enforcenextupdate** command in ca-crl configuration mode. To permit a lapsed or missing NextUpdate field, use the **no** form of this command.

enforcenextupdate

no enforcenextupdate

Syntax Description

This command has no arguments or keywords.

Defaults

The default setting is enforced (on).

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ca-crl configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

If set, this command requires CRLs to have a NextUpdate field that has not yet lapsed. If not used, the ASA allows a missing or lapsed NextUpdate field in a CRL.

Examples

The following example enters crypto ca-crl configuration mode and requires CRLs to have a NextUpdate field that has not expired for the trustpoint central:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# crl configure
hostname(ca-crl)# enforcenextupdate
hostname(ca-crl)#
```

Related Commands

Command	Description
cache-time	Specifies a cache refresh time in minutes.
crl configure	Enters ca-crl configuration mode.
crypto ca trustpoint	Enters crypto ca-trustpoint configuration mode.

enrollment-retrieval

To specify the time in hours that an enrolled user can retrieve a PKCS12 enrollment file, use the **enrollment-retrieval** command in local crypto ca-server configuration mode. To reset the time to the default number of hours (24), use the **no** form of this command.

enrollment-retrieval *timeout*

no enrollment-retrieval

Syntax Description

timeout	Specifies the number of hours users have to retrieve an issued certificate from the local CA enrollment web page. Valid timeout values range from 1 to 720 hours.

Defaults

By default, the PKCS12 enrollment file is stored and retrievable for 24 hours.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Crypto ca-server configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

A PKCS12 enrollment file contains an issued certificate and key pair. The file is stored on the local CA server and is available for retrieval from the enrollment web page for the time period specified with the **enrollment-retrieval** command.

When a user is marked as allowed to enroll, that user has the amount of time to enroll with that password specified in the **otp expiration** command. Once the user enrolls successfully, a PKCS12 file is generated, stored, and a copy is returned through the enrollment web page. The user can return for another copy of the file for any reason (such as when a download fails while trying enrollment) for the command time period specified in the **enrollment-retrieval** command.

Note This time is independent from the OTP expiration period.

Examples

The following example specifies that a PKCS12 enrollment file is available for retrieval from the local CA server for 48 hours after the certificate is issued:

```
hostname(config)# crypto ca server
```

```
hostname(config-ca-server)# enrollment-retrieval 48
hostname(config-ca-server)#
```

The following example resets the retrieval time back to the default of 24 hours:

```
hostname(config)# crypto ca server
hostname(config-ca-server)# no enrollment-retrieval
hostname(config-ca-server)#
```

Related Commands

Command	Description
crypto ca server	Provides access to ca-server configuration mode commands, which allow you to configure and manage the local CA.
OTP expiration	Specifies the duration in hours that an issued one-time password for the CA enrollment page is valid.
smtp from-address	Specifies the e-mail address to use in the E-mail From: field for all e-mails generated by the CA server.
smtp subject	Specifies the text appearing in the subject field of all e-mails generated by the local CA server.
subject-name-default	Specifies a generic subject-name DN to be used along with the username in all user certificates issued by a CA server.

enrollment retry count

To specify a retry count, use the **enrollment retry count** command in crypto ca-trustpoint configuration mode. To restore the default setting of the retry count, use the **no** form of the command.

enrollment retry count *number*

no enrollment retry count

Syntax Description

number	The maximum number of attempts to send an enrollment request. The valid values are 0, and 1-100 retries.

Defaults

The default setting for the *number* argument is 0 (unlimited).

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Crypto ca-trustpoint configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

After requesting a certificate, the ASA waits to receive a certificate from the CA. If the ASA does not receive a certificate within the configured retry period, it sends another certificate request. The ASA repeats the request until either it receives a response or reaches the end of the configured retry period. This command is optional and applies only when automatic enrollment is configured.

Examples

The following example enters crypto ca-trustpoint configuration mode for the trustpoint central, and configures an enrollment retry count of 20 retries within the trustpoint central:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# enrollment retry count 20
hostname(ca-trustpoint)#
```

Related Commands

Command	Description
crypto ca trustpoint	Enters crypto ca-trustpoint configuration mode.

Command	Description
default enrollment	Returns enrollment parameters to their defaults.
enrollment retry period	Specifies the number of minutes to wait before resending an enrollment request.

enrollment retry period

To specify a retry period, use the **enrollment retry period** command in crypto ca trustpoint configuration mode. To restore the default setting of the retry period, use the **no** form of the command.

enrollment retry period *minutes*

no enrollment retry period

Syntax Description

minutes	The number of minutes between attempts to send an enrollment request. The valid range is 1- 60 minutes.

Defaults

The default setting is 1 minute.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Crypto ca-trustpoint configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

After requesting a certificate, the ASA waits to receive a certificate from the CA. If the ASA does not receive a certificate within the specified retry period, it sends another certificate request. This command is optional and applies only when automatic enrollment is configured.

Examples

The following example enters crypto ca-trustpoint configuration mode for the trustpoint central, and configures an enrollment retry period of 10 minutes within the trustpoint central:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# enrollment retry period 10
hostname(ca-trustpoint)#
```

Related Commands

Command	Description
crypto ca trustpoint	Enters crypto ca-trustpoint configuration mode.
default enrollment	Returns all enrollment parameters to their system default values.
enrollment retry count	Defines the number of retries to requesting an enrollment.

enrollment terminal

To specify cut and paste enrollment with this trustpoint (also known as manual enrollment), use the **enrollment terminal** command in crypto ca-trustpoint configuration mode. To restore the default setting of the command, use the **no** form of the command.

enrollment terminal

no enrollment terminal

Syntax Description

This command has no arguments or keywords.

Defaults

The default setting is off.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Crypto ca-trustpoint configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example enters crypto ca-trustpoint configuration mode forthe trustpoint central, and specifies the cut-and-paste method of CA enrollment for the trustpoint central:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# enrollment terminal
hostname(ca-trustpoint)#
```

Related Commands

Command	Description
crypto ca trustpoint	Enters crypto ca-trustpoint configuration mode.
default enrollment	Returns enrollment parameters to their defaults.
enrollment retry count	Specifies the number of retries to attempt to send an enrollment request.
enrollment retry period	Specifies the number of minutes to wait before resending an enrollment request.
enrollment url	Specifies automatic enrollment (SCEP) with this trustpoint and configures the URL.

enrollment url

To specify automatic enrollment (SCEP) to enroll with this trustpoint and to configure the enrollment URL, use the **enrollment url** command in crypto ca-trustpoint configuration mode. To restore the default setting of the command, use the **no** form of the command.

enrollment url *url*

no enrollment url

Syntax Description

url	Specifies the name of the URL for automatic enrollment. The maximum length is 1K characters (effectively unbounded).

Defaults

The default setting is off.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Crypto ca-trustpoint configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example enters crypto ca-trustpoint configuration mode for the trustpoint central, and specifies SCEP enrollment at the URL https://enrollsite for trustpoint central:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# enrollment url https://enrollsite
hostname(ca-trustpoint)#
```

Related Commands

Command	Description
crypto ca trustpoint	Enters crypto ca-trustpoint configuration mode.
default enrollment	Returns enrollment parameters to their defaults.
enrollment retry count	Specifies the number of retries to attempt to send an enrollment request.
enrollment retry period	Specifies the number of minutes to wait before resending an enrollment request.
enrollment terminal	Specifies cut-and-paste enrollment with this trustpoint.

enrollment-retrieval

To specify the time in hours that an enrolled user can retrieve a PKCS12 enrollment file, use the **enrollment-retrieval** command in local ca-server configuration mode. To reset the time to the default number of hours (24), use the **no** form of this command.

enrollment-retrieval *timeout*

no enrollment-retrieval

Syntax Description

timeout	Specifies the number of hours users have to retrieve an issued certificate from the local CA enrollment web page. Valid timeout values range from 1 to 720 hours.

Defaults

By default, the PKCS12 enrollment file is stored and retrievable for 24 hours.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ca-server configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

A PKCS12 enrollment file contains an issued certificate and key pair. The file is stored on the local CA server and is available for retrieval from the enrollment web page for the time period specified with the **enrollment-retrieval** command.

When a user is marked as allowed to enroll, that user has the amount of time to enroll with that password specified by the **otp expiration** command. Once the user enrolls successfully, a PKCS12 file is generated, stored, and a copy is returned through the enrollment web page. The user can return for another copy of the file for any reason (such as when a download fails while trying enrollment) for the time period specified in the **enrollment-retrieval** command.

Note This time is independent from the OTP expiration period.

Examples

The following example specifies that a PKCS12 enrollment file is available for retrieval from the local CA server for 48 hours after the certificate is issued:

```
hostname(config)# crypto ca server
```

```
hostname(config-ca-server)# enrollment-retrieval 48
hostname(config-ca-server)#
```

The following example resets the retrieval time back to the default of 24 hours:

```
hostname(config)# crypto ca server
hostname(config-ca-server)# no enrollment-retrieval
hostname(config-ca-server)#
```

Related Commands

Command	Description
crypto ca server	Provides access to ca-server configuration mode commands, which allow you to configure and manage the local CA.
OTP expiration	Specifies the duration in hours that an issued one-time password for the CA enrollment page is valid.
smtp from-address	Specifies the e-mail address to use in the E-mail From: field for all e-mails generated by the CA server.
smtp subject	Specifies the text appearing in the subject field of all e-mails generated by the local CA server.
subject-name-default	Specifies a generic subject-name DN to be used along with the username in all user certificates issued by a CA server.

eool

To define an action when the End of Options List (EOOL) option occurs in a packet with IP Options inspection, use the **eool** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

eool action {allow | clear}

no eool action {allow | clear}

Syntax Description

allow	Instructs the ASA to allow a packet containing the End of Options List IP option to pass.
clear	Instructs the ASA to clear the End of Options List IP option from a packet and then allow the packet to pass.

Defaults

By default, IP Options inspection, drops packets containing the End of Options List IP option.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
8.2(2)	This command was introduced.

Usage Guidelines

This command can be configured in an IP Options inspection policy map.

You can configure IP Options inspection to control which IP packets with specific IP options are allowed through the ASA. Configuring this inspection instructs the ASA to allow a packet to pass or to clear the specified IP options and then allow the packet to pass.

The End of Options List option, which contains just a single zero byte, appears at the end of all options to mark the end of a list of options. This might not coincide with the end of the header according to the header length.

Examples

The following example shows how to set up an action for IP Options inspection in a policy map:

```
hostname(config)# policy-map type inspect ip-options ip-options_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# eool action allow
hostname(config-pmap-p)# nop action allow
hostname(config-pmap-p)# router-alert action allow
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

eou allow

To enable clientless authentication in a NAC Framework configuration, use the **eou allow** command in global configuration mode. To remove the command from the configuration, use the **no** form of this command.

eou allow {**audit** | **clientless** | **none**}

no eou allow {**audit** | **clientless** | **none**}

Syntax Description

audit	Performs clientless authentication.
clientless	Performs clientless authentication.
none	Disables clientless authentication.

Defaults

The default configuration contains the **eou allow clientless** configuration.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.
8.0(2)	Added the **audit** option.

Usage Guidelines

The ASA uses this command only if both of the following are true:

- The group policy is configured to use a NAC Framework NAC policy type.
- A host on the session does not respond to EAPoUDP requests.

Examples

The following example enables the use of an ACS to perform clientless authentication:

```
hostname(config)# eou allow clientless
hostname(config)#
```

The following example shows how to configure the ASA to use an audit server to perform clientless authentication:

```
hostname(config)# eou allow audit
hostname(config)#
```

The following example shows how to disable the use of an audit server:

```
hostname(config)# no eou allow clientless
hostname(config)#
```

Related Commands

Command	Description
debug eou	Enables logging of EAP over UDP events to debug NAC Framework messaging.
eou clientless	Changes the username and password to be sent to the ACS for clientless authentication in a NAC Framework configuration.
show vpn-session.db	Displays information about VPN sessions, including NAC results.

eou clientless

To change the username and password to be sent to the Access Control Server for clientless authentication in a NAC Framework configuration, use the **eou clientless** command in global configuration mode. To use the default value, use the **no** form of this command.

eou clientless username *username* **password** *password*

no eou clientless username *username* **password** *password*

Syntax Description

password	Enter to change the password sent to the Access Control Server to obtain clientless authentication for a remote host that does not respond to EAPoUDP requests.
password	Enter the password configured on the Access Control Server to support clientless hosts. Enter 4-32 ASCII characters.
username	Enter to change the username sent to the Access Control Server to obtain clientless authentication for a remote host that does not respond to EAPoUDP requests.
username	Enter the username configured on the Access Control Server to support clientless hosts. Enter 1-64 ASCII characters, excluding leading and trailing spaces, pound signs (#), question marks (?), quotation marks ("), asterisks (*), and angle brackets (< and >).

Defaults

The default value for both the username and password attributes is clientless.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command is effective only if all of the following are true:

- An Access Control Server is configured on the network to support clientless authentication.
- Clientless authentication is enabled on the ASA.
- NAC is configured on the ASA.

This command applies only to the Framework implementation of Cisco NAC.

Examples

The following example changes the username for clientless authentication to sherlock:

```
hostname(config)# eou clientless username sherlock
```

```
hostname(config)#
```

The following example changes the username for clientless authentication to the default value, clientless:

```
hostname(config)# no eou clientless username
hostname(config)#
```

The following example changes the password for clientless authentication to secret:

```
hostname(config)# eou clientless password secret
hostname(config)#
```

The following example changes the password for clientless authentication to the default value, clientless:

```
hostname(config)# no eou clientless password
hostname(config)#
```

Related Commands

Command	Description
eou allow	Enables clientless authentication in a NAC Framework configuration.
debug eou	Enables logging of EAP over UDP events to debug NAC Framework messaging.
debug nac	Enables logging of NAC Framework events.

eou initialize

To clear the resources assigned to one or more NAC Framework sessions and initiate a new, unconditional posture validation for each of the sessions, use the **eou initialize** command in privileged EXEC mode.

eou initialize {**all** | **group** *tunnel-group* | **ip** *ip-address*}

Syntax Description

all	Revalidates all NAC Framework sessions on this ASA
group	Revalidates all NAC Framework sessions assigned to a tunnel group.
ip	Revalidates a single NAC Framework session.
ip-address	IP address of the remote peer end of the tunnel.
tunnel-group	Name of the tunnel group used to negotiate parameters to set up the tunnel.

Defaults

No default behavior or values.

Command Modes

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

Use this command if a change occurs in the posture of the remote peers or if the assigned access policies (that is, the downloaded ACLs) change, and you want to clear the resources assigned to the sessions. Entering this command purges the EAPoUDP associations and access policies used for posture validation. The NAC default ACL is effective during the revalidations, so the session initializations can disrupt user traffic. This command does not affect peers that are exempt from posture validation.

This command applies only to the Framework implementation of Cisco NAC.

Examples

The following example initializes all NAC Framework sessions:

```
hostname# eou initialize all
hostname
```

The following example initializes all NAC Framework sessions assigned to the tunnel group named tg1:

```
hostname# eou initialize group tg1
hostname
```

The following example initializes the NAC Framework session for the endpoint with the IP address 209.165. 200.225:

```
hostname# eou initialize 209.165.200.225
hostname
```

Related Commands

Command	Description
eou revalidate	Forces immediate posture revalidation of one or more NAC Framework sessions.
reval-period	Specifies the interval between each successful posture validation in a NAC Framework session.
sq-period	Specifies the interval between each successful posture validation in a NAC Framework session and the next query for changes in the host posture.
show vpn-session.db	Displays information about VPN sessions, including NAC results.
debug nac	Enables logging of NAC Framework events.

eou max-retry

To change the number of times the ASA resends an EAP over UDP message to the remote computer, use the **eou max-retry** command in global configuration mode. To use the default value, use the **no** form of this command.

eou max-retry *retries*

no eou max-retry

Syntax Description

retries	Limits the number of consecutive retries sent in response to retransmission timer expirations. Enter a value in the range of 1 to 3.

Defaults

The default value is 3.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command is effective only if all of the following are true:

- An Access Control Server is configured on the network to support clientless authentication.
- Clientless authentication is enabled on the ASA.
- NAC is configured on the ASA.

This command applies only to the Framework implementation of Cisco NAC.

Examples

The following example limits the number of EAP over UDP retransmissions to 1:

```
hostname(config)# eou max-retry 1
hostname(config)#
```

The following example changes the number of EAP over UDP retransmissions to its default value, 3:

```
hostname(config)# no eou max-retry
hostname(config)#
```

Related Commands

eou timeout	Changes the number of seconds to wait after sending an EAP over UDP message to the remote host in a NAC Framework configuration.
sq-period	Specifies the interval between each successful posture validation in a NAC Framework session and the next query for changes in the host posture.
debug eou	Enables logging of EAP over UDP events to debug NAC Framework messaging.
debug nac	Enables logging of NAC Framework events.
show vpn-session.db	Displays information about VPN sessions, including NAC results.

eou port

To change the port number for EAP over UDP communication with the Cisco Trust Agent in a NAC Framework configuration, use the **eou port** command in global configuration mode. To use the default value, use the **no** form of this command.

eou port *port_number*

no eou port

Syntax Description

port_number	Port number on the client endpoint to be designated for EAP over UDP communications. This number is the port number configured on the Cisco Trust Agent. Enter a value in the range of 1024 to 65535.

Defaults

The default value is 21862.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command applies only to the Framework implementation of Cisco NAC.

Examples

The following example changes the port number for EAP over UDP communication to 62445:

```
hostname(config)# eou port 62445
hostname(config)#
```

The following example changes the port number for EAP over UDP communication to its default value:

```
hostname(config)# no eou port
hostname(config)#
```

Related Commands

debug eou	Enables logging of EAP over UDP events to debug NAC Framework messaging.
eou initialize	Clears the resources assigned to one or more NAC Framework sessions and initiates a new, unconditional posture validation for each of the sessions.
eou revalidate	Forces immediate posture revalidation of one or more NAC Framework sessions.
show vpn-session.db	Displays information about VPN sessions, including VLAN mapping and NAC results.
show vpn-session_summary.db	Displays the number IPsec, Cisco AnyConnect, and NAC sessions, including VLAN mapping session data.

eou revalidate

To force immediate posture revalidation of one or more NAC Framework sessions, use the **eou revalidate** command in privileged EXEC mode.

eou revalidate {**all** | **group** *tunnel-group* | **ip** *ip-address*}

Syntax Description

all	Revalidates all NAC Framework sessions on this ASA
group	Revalidates all NAC Framework sessions assigned to a tunnel group.
ip	Revalidates a single NAC Framework session.
ip-address	IP address of the remote peer end of the tunnel.
tunnel-group	Name of the tunnel group used to negotiate parameters to set up the tunnel.

Defaults

No default behavior or values.

Command Modes

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

Use this command if the posture of the peer or the assigned access policy (that is, the downloaded ACL, if any) has changed. The command initiates a new, unconditional posture validation. The posture validation and assigned access policy that were in effect before you entered the command remain in effect until the new posture validation succeeds or fails. This command does not affect peers that are exempt from posture validation.

This command applies only to the Framework implementation of Cisco NAC.

Examples

The following example revalidates all NAC Framework sessions:

```
hostname# eou revalidate all
hostname
```

The following example revalidates all NAC Framework sessions assigned to the tunnel group named tg-1:

```
hostname# eou revalidate group tg-1
hostname
```

The following example revalidates the NAC Framework session for the endpoint with the IP address 209.165. 200.225:

```
hostname# eou revalidate ip 209.165.200.225
hostname
```

Related Commands

Command	Description
debug eou	Enables logging of EAP over UDP events to debug NAC Framework messaging.
eou initialize	Clears the resources assigned to one or more NAC Framework sessions and initiates a new, unconditional posture validation for each of the sessions.
eou timeout	Changes the number of seconds to wait after sending an EAP over UDP message to the remote host in a NAC Framework configuration.
reval-period	Specifies the interval between each successful posture validation in a NAC Framework session.
sq-period	Specifies the interval between each successful posture validation in a NAC Framework session and the next query for changes in the host posture.

eou timeout

To change the number of seconds to wait after sending an EAP over UDP message to the remote host in a NAC Framework configuration, use the **eou timeout** command in global configuration mode. To use the default value, use the **no** form of this command.

eou timeout {**hold-period** | **retransmit**} *seconds*

no eou timeout {**hold-period** | **retransmit**}

Syntax Description

hold-period	Maximum time to wait after sending EAPoUDP messages equal to the number of EAPoUDP retries. The **eou initialize** or **eou revalidate** command also clears this timer. If this timer expires, the ASA initiates a new EAP over UDP association with the remote host.
retransmit	Maximum time to wait after sending an EAPoUDP message. A response from the remote host clears this timer. The **eou initialize** or **eou revalidate** command also clears this timer. If the timer expires, the ASA retransmits the EAPoUDP message to the remote host.
seconds	Number of seconds for the ASA to wait. Enter a value in the range of 60 to 86400 for the hold-period attribute, or the range of 1 to 60 for the retransmit attribute.

Defaults

The default value of the **hold-period** option is 180.

The default value of the **retransmit** option is 3.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command applies only to the Framework implementation of Cisco NAC.

Examples

The following example changes the wait period before initiating a new EAP over UDP association to 120 seconds:

```
hostname(config)# eou timeout hold-period 120
hostname(config)#
```

The following example changes the wait period before initiating a new EAP over UDP association to its default value:

```
hostname(config)# no eou timeout hold-period
hostname(config)#
```

The following example changes the retransmission timer to 6 seconds:

```
hostname(config)# eou timeout retransmit 6
hostname(config)#
```

The following example changes the retransmission timer to its default value:

```
hostname(config)# no eou timeout retransmit
hostname(config)#
```

Related Commands

Command	Description
debug eou	Enables logging of EAP over UDP events to debug NAC Framework messaging.
eou max-retry	Changes the number of times the ASA resends an EAP over UDP message to the remote computer.

erase

To erase and reformat the file system, use the **erase** command in privileged EXEC mode. This command overwrites all files and erases the file system, including hidden system files, then reinstalls the file system.

erase [**disk0: | disk1: | flash:**]

Syntax Description

disk0:	(Optional) Specifies the f, followed by a colon.
disk1:	(Optional) Specifies the external, compact Flash memory card, followed by a colon.
flash:	(Optional) Specifies the internal Flash memory, followed by a colon. **Caution** Erasing the flash memory also removes the licensing information, which is stored in flash memory. Save the licensing information before erasing the flash memory. On the ASA 5500 series, the **flash** keyword is aliased to **disk0:**.

Defaults

No default beahviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **erase** command erases all data in the flash memory using the OxFF pattern and then rewrites an empty file system allocation table to the device.

To delete all visible files (excluding hidden system files), enter the **delete /recursive** command, instead of the **erase** command.

Note On the Cisco ASA 5500 series, the **erase** command destroys all user data on the disk with the 0xFF pattern. In contrast, the **format** command only resets the file system control structures. If you used a raw disk read tool, you could still see the information.

Examples

The following example erases and reformats the file system:

```
hostname# erase flash:
```

Related Commands

Command	Description
delete	Removes all visible files, excluding hidden system files.
format	Erases all files (including hidden system files) and formats the file system.

esp

To specify parameters for ESP and AH tunnels for IPsec Pass-Through inspection, use the **esp** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

{**esp** | **ah**} [**per-client-max** *num*] [**timeout** *time*]

no {**esp** | **ah**} [**per-client-max** *num*] [**timeout** *time*]

Syntax Description

esp	Specifies parameters for the ESP tunnel.
ah	Specifies parameters for the AH tunnel.
per-client-max *num*	Specifies the maximum number of tunnels from one client.
timeout *time*	Specifies the idle timeout for the ESP tunnel.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to permit UDP 500 traffic:

```
hostname(config)# access-list test-udp-acl extended permit udp any any eq 500
hostname(config)# class-map test-udp-class
hostname(config-pmap-c)# match access-list test-udp-acl

hostname(config)# policy-map type inspect ipsec-pass-thru ipsec-map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# esp per-client-max 32 timeout 00:06:00
hostname(config-pmap-p)# ah per-client-max 16 timeout 00:05:00

hostname(config)# policy-map test-udp-policy
hostname(config-pmap)# class test-udp-class
hostname(config-pmap-c)# inspect ipsec-pass-thru ipsec-map
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

established

To permit return connections on ports that are based on an established connection, use the **established** command in global configuration mode. To disable the **established** feature, use the **no** form of this command.

established *est_protocol dest_port* [*source_port*] [**permitto** *protocol port* [*-port*]] [**permitfrom** *protocol port*[*-port*]]

no established *est_protocol dest_port* [*source_port*] [**permitto** *protocol port* [*-port*]] [**permitfrom** *protocol port*[*-port*]]

Syntax Description

est_protocol	Specifies the IP protocol (UDP or TCP) to use for the established connection lookup.
dest_port	Specifies the destination port to use for the established connection lookup.
permitfrom	(Optional) Allows the return protocol connection(s) originating from the specified port.
permitto	(Optional) Allows the return protocol connections destined to the specified port.
port [*-port*]	(Optional) Specifies the (UDP or TCP) destination port(s) of the return connection.
protocol	(Optional) IP protocol (UDP or TCP) used by the return connection.
source_port	(Optional) Specifies the source port to use for the established connection lookup.

Defaults

The defaults are as follows:

- *dest_port*—0 (wildcard)
- *source_port*—0 (wildcard)

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	The keywords **to** and **from** were removed from the CLI. Use the keywords **permitto** and **permitfrom** instead.

Usage Guidelines

The **established** command lets you permit return access for outbound connections through the ASA. This command works with an original connection that is outbound from a network and protected by the ASA and a return connection that is inbound between the same two devices on an external host. The **established** command lets you specify the destination port that is used for connection lookups. This

addition allows more control over the command and provides support for protocols where the destination port is known, but the source port is unknown. The **permitto** and **permitfrom** keywords define the return inbound connection.

Caution We recommend that you always specify the **established** command with the **permitto** and **permitfrom** keywords. Using the **established** command without these keywords is a security risk because when connections are made to external systems, those system can make unrestricted connections to the internal host involved in the connection. This situation can be exploited for an attack of your internal systems.

Examples

The following set of examples shows potential security violations could occur if you do not use the **established** command correctly.

This example shows that if an internal system makes a TCP connection to an external host on port 4000, then the external host could come back in on any port using any protocol:

```
hostname(config)# established tcp 4000 0
```

You can specify the source and destination ports as **0** if the protocol does not specify which ports are used. Use wildcard ports (0) only when necessary.

```
hostname(config)# established tcp 0 0
```

Note To allow the **established** command to work correctly, the client must listen on the port that is specified with the **permitto** keyword.

You can use the **established** command with the **nat 0** command (where there are no **global** commands).

Note You cannot use the **established** command with PAT.

The ASA supports XDMCP with assistance from the **established** command.

Caution Using XWindows system applications through the ASA may cause security risks.

XDMCP is on by default, but it does not complete the session unless you enter the **established** command as follows:

```
hostname(config)# established tcp 6000 0 permitto tcp 6000 permitfrom tcp 1024-65535
```

Entering the **established** command enables the internal XDMCP-equipped (UNIX or ReflectionX) hosts to access external XDMCP-equipped XWindows servers. UDP/177-based XDMCP negotiates a TCP-based XWindows session, and subsequent TCP back connections are permitted. Because the source port(s) of the return traffic is unknown, specify the *source_port* field as 0 (wildcard). The *dest_port* should be 6000 + *n*, where *n* represents the local display number. Use this UNIX command to change this value:

```
hostname(config)# setenv DISPLAY hostname:displaynumber.screennumber
```

The **established** command is needed because many TCP connections are generated (based on user interaction) and the source port for these connections is unknown. Only the destination port is static. The ASA performs XDMCP fixups transparently. No configuration is required, but you must enter the **established** command to accommodate the TCP session.

The following example shows a connection between two hosts using protocol A destined for port B from source port C. To permit return connections through the ASA and protocol D (protocol D can be different from protocol A), the source port(s) must correspond to port F and the destination port(s) must correspond to port E.

```
hostname(config)# established A B C permitto D E permitfrom D F
```

The following example shows how a connection is started by an internal host to an external host using TCP destination port 6060 and any source port. The ASA permits return traffic between the hosts through TCP destination port 6061 and any TCP source port.

```
hostname(config)# established tcp 6060 0 permitto tcp 6061 permitfrom tcp 0
```

The following example shows how a connection is started by an internal host to an external host using UDP destination port 6060 and any source port. The ASA permits return traffic between the hosts through TCP destination port 6061 and TCP source port 1024-65535.

```
hostname(config)# established udp 6060 0 permitto tcp 6061 permitfrom tcp 1024-65535
```

The following example shows how a local host starts a TCP connection on port 9999 to a foreign host. The example allows packets from the foreign host on port 4242 back to local host on port 5454.

```
hostname(config)# established tcp 9999 permitto tcp 5454 permitfrom tcp 4242
```

Related Commands

Command	Description
clear configure established	Removes all established commands.
show running-config established	Displays the allowed inbound connections that are based on established connections.

exceed-mss

To allow or drop packets whose data length exceeds the TCP maximum segment size (MSS) set by the peer during a three-way handshake, use the **exceed-mss** command in tcp-map configuration mode. To remove this specification, use the **no** form of this command.

exceed-mss {**allow** | **drop**}

no exceed-mss {**allow** | **drop**}

Syntax Description

allow	Allows packets that exceed the MSS. This setting is the default.
drop	Drops packets that exceed the MSS.

Defaults

Packets are allowed by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tcp-map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(4)/8.0(4)	The default was changed from **drop** to **allow**.

Usage Guidelines

The **tcp-map** command is used along with the Modular Policy Framework infrastructure. Define the class of traffic using the **class-map** command and customize the TCP inspection with **tcp-map** commands. Apply the new TCP map using the **policy-map** command. Activate TCP inspection with **service-policy** commands.

Use the **tcp-map** command to enter tcp-map configuration mode. Use the **exceed-mss** command in tcp-map configuration mode to drop TCP packets whose data length exceed the TCP maximum segment size set by the peer during a three-way handshake.

Examples

The following example drops flows on port 21 if they are in excess of MSS:

```
hostname(config)# tcp-map tmap
hostname(config-tcp-map)# exceed-mss drop
hostname(config)# class-map cmap
hostname(config-cmap)# match port tcp eq ftp
hostname(config)# policy-map pmap
hostname(config-pmap)# class cmap
```

```
hostname(config-pmap)# set connection advanced-options tmap
hostname(config)# service-policy pmap global
```

Related Commands

Command	Description
class	Specifies a class map to use for traffic classification.
policy-map	Configures a policy; that is, an association of a traffic class and one or more actions.
set connection advanced-options	Configures advanced connection features, including TCP normalization.
tcp-map	Creates a TCP map and allows access to tcp-map configuration mode.

exempt-list

To add an entry to the list of remote computer types that are exempt from posture validation, use the **exempt-list** command in nac-policy-nac-framework configuration mode. To remove an entry from the exemption list, use the **no** form of this command and name the operating system and ACL in the entry to be removed.

exempt-list os "*os-name*" [**disable | filter** *acl-name* [**disable**]]

no exempt-list os "*os-name*" [**disable | filter** *acl-name* [**disable**]]

Syntax Description

acl-name	Name of the ACL present in the ASA configuration. When specified, it must follow the **filter** keyword.
disable	Performs one of two functions, as follows: • If you enter it after the "os-name," the ASA ignores the exemption, and applies NAC posture validation to the remote hosts that are running that operating system. • If you enter it after the *acl-name*, ASA exempts the operating system, but does not assign the ACL to the associated traffic.
filter	Applies an ACL to filter the traffic if the computer's operating system matches the *os name*. The **filter**/*acl-name* pair is optional.
os	Exempts an operating system from posture validation.
os name	Operating system name. Quotation marks are required only if the name includes a space (for example, "Windows XP").

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Nac-policy-nac-framework configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.
8.0(2)	Command name changed from **vpn-nac-exempt** to **exempt-list**. Command moved from group-policy configuration mode to nac-policy-nac-framework configuration mode.

Usage Guidelines

When the command specifies an operating system, it does not overwrite the previously added entry to the exception list; enter the command once for each operating system and ACL that you want to exempt.

The **no exempt-list** command removes all exemptions from the NAC Framework policy. Specifying an entry when issuing the **no** form of the command removes the entry from the exemption list.

To remove all entries from the exemption list associated with this NAC policy, use the **no** form of this command without specifying additional keywords.

Examples

The following example adds all hosts running Windows XP to the list of computers that are exempt from posture validation:

```
hostname(config-group-policy)# exempt-list os "Windows XP"
hostname(config-group-policy)
```

The following example exempts all hosts running Windows XP and applies the ACL acl-1 to traffic from those hosts:

```
hostname(config-nac-policy-nac-framework)# exempt-list os "Windows XP" filter acl-1
hostname(config-nac-policy-nac-framework)
```

The following example removes the same entry from the exemption list:

```
hostname(config-nac-policy-nac-framework)# no exempt-list os "Windows XP" filter acl-1
hostname(config-nac-policy-nac-framework)
```

The following example removes all entries from the exemption list:

```
hostname(config-nac-policy-nac-framework)# no exempt-list
hostname(config-nac-policy-nac-framework)
```

Related Commands

Command	Description
debug nac	Enables logging of NAC Framework events.
nac-policy	Creates and accesses a Cisco NAC policy, and specifies its type.
nac-settings	Assigns a NAC policy to a group policy.
show vpn-session.db	Displays information about VPN sessions, including NAC results.
show vpn-session_summary.db	Displays the number of IPsec, Cisco AnyConnect, and NAC sessions.

exit

To exit the current configuration mode, or to logout from privileged or user EXEC modes, use the **exit** command.

exit

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
User EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You can also use the key sequence **Ctrl+Z** to exit global configuration (and higher) modes. This key sequence does not work with privileged or user EXEC modes.

When you enter the **exit** command in privileged or user EXEC modes, you log out from the ASA. Use the **disable** command to return to user EXEC mode from privileged EXEC mode.

Examples

The following example shows how to use the **exit** command to exit global configuration mode, then log out from the session:

```
hostname(config)# exit
hostname# exit

Logoff
```

The following example shows how to use the **exit** command to exit global configuration mode, then use the **disable** command to exit privileged EXEC mode:

```
hostname(config)# exit
hostname# disable
hostname#
```

Related Commands

Command	Description
quit	Exits a configuration mode or logs out of the privileged or user EXEC modes.

expiry-time

To configure an expiration time for caching objects without revalidating them, use the **expiry-time** command in cache configuration mode. To remove the expiration time from the configuration and reset it to the default value, use the **no** form of this command.

expiry-time *time*

no expiry-time

Syntax Description

time	The amount of time in minutes that the ASA caches objects without revalidating them.

Defaults

The default is 1 minute.

Command Modes

The following table shows the modes in which you enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Cache configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

The expiration time is the amount of time in minutes that the ASA caches an object without revalidating it. Revalidation consists of rechecking the content.

Examples

The following example shows how to set an expiration time with a value of 13 minutes:

```
hostname(config)# webvpn
hostname(config-webvpn)# cache
hostname(config-webvpn-cache)#expiry-time 13
hostname(config-webvpn-cache)#
```

Related Commands

Command	Description
cache	Enters webvpn cache configuration mode.
cache-compressed	Configures WebVPN cache compression.
disable	Disables caching.

Command	Description
lmfactor	Sets a revalidation policy for caching objects that have only the last-modified timestamp.
max-object-size	Defines the maximum size of an object to cache.
min-object-size	Defines the minimum sizze of an object to cache.

export

To specify the certificate to be exported to the client, use the **export** command in ctl-provider configuration mode. To remove the configuration, use the **no** form of this command.

export certificate *trustpoint_name*

no export certificate [*trustpoint_name*]

Syntax Description

certificate *trustpoint_name*	Specifies the certificate to be exported to the client.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ctl-provider configuration	•	•	•		—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Use the **export** command in ctl-provider configuration mode to specify the certificate to be exported to the client. The trustpoint name is defined by the **crypto ca trustpoint** command. The certificate will be added to the CTL file composed by the CTL client.

Examples

The following example shows how to create a CTL provider instance:

```
hostname(config)# ctl-provider my_ctl
hostname(config-ctl-provider)# client interface inside 172.23.45.1
hostname(config-ctl-provider)# client username CCMAdministrator password XXXXXX encrypted
hostname(config-ctl-provider)# export certificate ccm_proxy
hostname(config-ctl-provider)# ctl install
```

Related Commands

Commands	Description
ctl	Parses the CTL file from the CTL client and install trustpoints.
ctl-provider	Configures a CTL provider instance in ctl-provider configuration mode.
client	Specifies clients allowed to connect to the CTL provider and the username and password for client authentication.

Commands	Description
service	Specifies the port to which the CTL provider listens.
tls-proxy	Defines a TLS proxy instance and sets the maximum sessions.

export webvpn AnyConnect-customization

To export a customization object that customizes the AnyConnect client GUI, use the **export webvpn AnyConnect-customization** command in privileged EXEC mode:

export webvpn AnyConnect-customization type *type* **platform** *platform* **name** *name*

Syntax Description

name	The name that identifies the customization object. The maximum number is 64 characters.
type	The type of customization: • binary—An executable that replaces the AnyConnect GUI. • transform—A transform that customizes the MSI.
url	Remote path and filename to export the XML customization object, in the form *URL/filename* (the maximum number is 255 characters).

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

An AnyConnect customization object is an XML file that resides in cache memory, and customizes the GUI screens for AnyConnect client users. When you export a customization object, an XML file containing XML tags is created at the URL you specify.

The XML file created by the customization object named *Template* contains empty XML tags, and provides the basis for creating new customization objects. This object cannot be changed or deleted from cache memory, but can be exported, edited, and imported back into the ASA as a new customization object.

The content of *Template* is the same as the initial DfltCustomization object state.

For a complete list of resource files used the AnyConnect GUI and their filenames, see the *AnyConnect VPN Client Administrator Guide*.

Examples

The following example exports the Cisco logo used on the AnyConnect GUI:

```
hostname# export webvpn AnyConnect-customization type resource company_logo.bmp
tftp://209.165.200.225/dflt_custom
!!!!!!!!!!!!!!!!INFO: Customization object 'DfltCustomization' was exported to
tftp://10.86.240.197/dflt_custom
hostname#
```

Related Commands

Command	Description
import webvpn customization	Imports an XML file to cache memory as a customization object .
revert webvpn customization	Removes a customization object from cache memory.
show import webvpn customization	Displays information about customization objects resident in cache memory.

export webvpn customization

To export a customization object that customizes screens visible to Clientless SSL VPN users, use the **export webvpn customization** command in privileged EXEC mode.

export webvpn customization *name url*

Syntax Description

name	The name that identifies the customization object. The maximum number is 64 characters.
url	Remote path and filename to export the XML customization object, in the form *URL/filename* (the maximum number is 255 characters).

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

A customization object is an XML file that resides in cache memory, and customizes the screens visible to Clientless SSL VPN users, including login and logout screens, the portal page, and available languages. When you export a customization object, an XML file containing XML tags is created at the URL that you specify.

The XML file created by the customization object named *Template* contains empty XML tags, and provides the basis for creating new customization objects. This object cannot be changed or deleted from cache memory, but can be exported, edited, and imported back into the ASA as a new customization object.

The content of *Template* is the same as the initial DfltCustomization object state.

You can export a customization object using the **export webvpn customization** command, make changes to the XML tags, and import the file as a new object using the **import webvpn customization** command.

Examples

The following example exports the default customization object (DfltCustomization) and creates the resulting XML file named dflt_custom:

```
hostname# export webvpn customization DfltCustomization tftp://209.165.200.225/dflt_custom
```

```
!!!!!!!!!!!!!!!!INFO: Customization object 'DfltCustomization' was exported to
tftp://10.86.240.197/dflt_custom
hostname#
```

Related Commands

Command	Description
import webvpn customization	Imports an XML file to cache memory as a customization object .
revert webvpn customization	Removes a customization object from cache memory.
show import webvpn customization	Displays information about customization objects resident in cache memory.

export webvpn plug-in

To export a plug-in from the flash device of the ASA, enter the **export webvpn plug-in** command in privileged EXEC mode.

import webvpn plug-in protocol *protocol URL*

Syntax Description

protocol	• **rdp** The Remote Desktop Protocol plug-in lets the remote user connect to a computer running Microsoft Terminal Services. Cisco redistributes this plug-in without any changes. The web site containing the original is http://properjavardp.sourceforge.net/. • **ssh,telnet** The Secure Shell plug-in lets the remote user establish a secure channel to a remote computer, or lets the remote user use Telnet to connect to a remote computer. Cisco redistributes this plug-in without any changes. The web site containing the original is http://javassh.org/. **Caution** The **export webvpn plug-in protocol ssh,telnet** *URL* command exports *both* the SSH and Telnet plug-ins. Do *not* enter this command once for SSH and once for Telnet. When typing the **ssh,telnet** string, do *not* insert a space. • **vnc** The Virtual Network Computing plug-in lets the remote user use a monitor, keyboard, and mouse to view and control a computer with remote desktop sharing turned on. Cisco redistributes this plug-in without any changes. The web site containing the original is http://www.tightvnc.com/.
URL	Path to the remote device.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC mode	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Exporting a plug-in does not remove it from flash. Exporting creates a copy of the plug-in at the specified URL.

Examples

The following command exports the RDP plugin:

```
hostname# export webvpn plug-in protocol rdp tftp://209.165.201.22/plugins/rdp-plugin.jar
```

Related Commands

Command	Description
import webvpn plugin	Imports a specified plug-in from a local device to the ASA flash.
revert webvpn plug-in protocol	Removes the specified plug-in from the flash device of the ASA.
show import webvpn plug-in	Lists the plug-ins present on the flash device of the ASA.

export webvpn mst-translation

To export a Microsoft transform (MST) that translates the AnyConnect installer program, use the **export webvpn mst-translation** command in privileged EXEC mode:

export webvpn mst-translation *component* **language** *language URL*

Syntax Description

component	The component to which this MST applies. The only valid choice is AnyConnect.
language	The language code of the MST exported. Use the code in the same format that the browser requires.
URL	The remote path and filename to export the transform to, in the form *URL/filename* (the maximum number is 255 characters).

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
privileged EXEC	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

As with the AnyConnect client GUI, you can translate messages displayed by the client installer program. The ASA uses transforms to translate the messages displayed by the installer. The transform alters the installation, but leaves the original security-signed MSI intact. These transforms only translate the installer screens and do not translate the client GUI screens.

Each language has its own transform. You can edit a transform with a transform editor such as Orca, and make changes to the message strings. Then you import the transform to the ASA. When the user downloads the client, the client detects the preferred language of the computer (the locale specified during installation of the operating system) and applies the appropriate transform.

We currently offer transforms for 30 languages. These transforms are available in the following .zip file on the AnyConnect client software download page at cisco.com:

anyconnect-win-<VERSION>-web-deploy-k9-lang.zip

In this file, <VERSION> is the version of AnyConnect release (for exmaple, 2.2.103).

Examples

The following example exports the English language transform as AnyConnect_Installer_English:

```
hostname# export webvpn mst-translation AnyConnect language es
tftp://209.165.200.225/AnyConnect_Installer_English
```

Related Commands

Command	Description
import webvpn customization	Imports an XML file to cache memory as a customization object .
revert webvpn customization	Removes a customization object from cache memory.
show import webvpn customization	Displays information about customization objects resident in cache memory.

export webvpn translation-table

To export a translation table used to translate terms displayed to remote users establishing SSL VPN connections, use the **export webvpn translation-table** command in privileged EXEC mode.

export webvpn translation-table *translation_domain* {**language** *language* | **template**} *url*

Syntax Description

language	Specifies the name of a previously imported translation table. Enter the value in the manner expressed by your browser language options.
translation_domain	The functional area and associated messages. Table 20-1 lists available translation domains.
url	Specifies the URL of the object.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
rivileged EXEC	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

The ASA provides language translation for the portal and screens displayed to users that initiate browser-based, clientless SSL VPN connections, as well as the user interface displayed to AnyConnect VPN Client users.

Each functional area and its messages that are visible to remote users has its own translation domain, which are specified by the *translation_domain* argument. Table 20-1 shows the translation domains and the functional areas translated.

Table 20-1 Translation Domains and Functional Areas Affected

Translation Domain	Functional Areas Translated
AnyConnect	Messages displayed on the user interface of the Cisco AnyConnect VPN Client.
banners	Banners displayed to remote users and messages when VPN access is denied.
CSD	Messages for the Cisco Secure Desktop (CSD).

Translation Domain	Functional Areas Translated
customization	Messages on the login and logout pages, portal page, and all the messages customizable by the user.
plugin-ica	Messages for the Citrix plug-in.
plugin-rdp	Messages for the Remote Desktop Protocol plug-in.
plugin-telnet,ssh	Messages for the Telnet and SSH plug-in.
plugin-vnc	Messages for the VNC plug-in.
PortForwarder	Messages displayed to Port Forwarding users.
url-list	Text that user specifies for URL bookmarks on the portal page.
webvpn	All the layer 7, AAA, and portal messages that are not customizable.

A translation template is an XML file in the same format as the translation table, but has all the translations empty. The software image package for the ASA includes a template for each domain that is part of the standard functionality. Templates for plug-ins are included with the plug-ins and define their own translation domains. Because you can customize the login and logout pages, portal page, and URL bookmarks for clientless users, the ASA generates the customization and url-list translation domain templates dynamically, and the template automatically reflects your changes to these functional areas.

Exporting a previously-imported translation table creates an XML file of the table at the URL location. You can view a list of available templates and previously-imported tables using the **show import webvpn translation-table** command.

Download a template or translation table using the **export webvpn translation-table** command, make changes to the messages, and import the translation table using the **import webvpn translation-table** command.

Examples

The following example exports a template for the translation domain *customization*, which is used to translate the login and logout pages, portal page, and all the messages customizable and visible to remote users establishing clientless SSL VPN connections. The ASA creates the XML file with the name *Sales*:

```
hostname# export webvpn translation-table customization template
tftp://209.165.200.225/Sales
hostname# !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
```

The following example exports a previously imported translation table for the Chinese language named *zh*, an abbreviation compatible with the abbreviation specified for Chinese in the Internet Options of the Microsoft Internet Explorer browser. The ASA creates the XML file with the name *Chinese*:

```
hostname# export webvpn translation-table customization language zh
tftp://209.165.200.225/Chinese
hostname# !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
```

Related Commands

Command	Description
import webvpn translation-table	Imports a translation table.

revert	Removes translation tables from cache memory.
show import webvpn translation-table	Displays information about imported translation tables.

export webvpn url-list

To export a URL list to a remote location, use the **export webvpn url-list** command in privileged EXEC mode.

export webvpn url-list *name url*

Syntax Description

name	The name that identifies the URL list. The maximum inumber is 64 characters.
url	The remote path to the source of the URL list. The maximum number is 255 characters.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•		—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

No URL lists are present in WebVPN by default.

An object, Template, is available for downloading with the **export webvpn url-list** command. The Template object cannot be changed or deleted. The contents of the Template object can be edited and saved as a custom URL list, and imported with the **import webvpn url-list** command to add a custom URL list.

Exporting a previously imported URL list creates an XML file of the list at the URL location. You can view a list of available templates and previously imported tables using the **show import webvpn url-list** command.

Examples

The following example exports a URL list, *servers*:

```
hostname# export webvpn url-list servers2 tftp://209.165.200.225
hostname#
```

Related Commands

Command	Description
import webvpn url-list	Imports a URL list.
revert webvpn url-list	Removes URL lists from cache memory.
show import webvpn url-list	Displays information about imported URL lists.

export webvpn webcontent

To export previously imported content in flash memory that is visible to remote Clientless SSL VPN users, use the **export webvpn webcontent** command in privileged EXEC mode.

export webvpn webcontent *source url destination url*

Syntax Description

destination url	The URL to export to. The maximum number is 255 characters.
source url	The URL in the ASA flash memory in which the content resides. The maximum number is 64 characters.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•		—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Content exported with the **webcontent** option is content visible to remote clientless users. This includes previously imported help content visible on the clientless portal and logos used by customization objects.

You can see a list of content available for export by entering a question mark (**?**) after the **export webvpn webcontent** command. For example:

```
hostname# export webvpn webcontent ?

Select webcontent to export:
  /+CSCOE+/help/en/app-access-hlp.inc
  /+CSCOU+/cisco_logo.gif
```

Examples

The following example exports the file *logo.gif*, using TFTP, to 209.165.200.225, as the filename *logo_copy.gif*:

```
hostname# export webvpn webcontent /+CSCOU+/logo.gif tftp://209.165.200.225/logo_copy.gif
!!!!* Web resource `/+CSCOU+/logo.gif' was successfully initialized
```

Related Commands

Command	Description
import webvpn webcontent	Imports content visible to Clientless SSL VPN users.
revert webvpn webcontent	Removes content from flash memory.
show import webvpn webcontent	Displays information about imported content.

failover through fallback Commands

failover

To enable failover, use the **failover** command in global configuration mode. To disable failover, use the **no** form of this command.

failover

no failover

Syntax Description

This command has no arguments or keywords.

Defaults

Failover is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was limited to enable or disable failover in the configuration (see the **failover active** command).

Usage Guidelines

Use the **no** form of this command to disable failover.

Caution All information sent over the failover and Stateful Failover links is sent in clear text unless you secure the communication with a failover key. If the ASA is used to terminate VPN tunnels, this information includes any usernames, passwords and preshared keys used for establishing the tunnels. Transmitting this sensitive data in clear text could pose a significant security risk. We recommend securing the failover communication with a failover key if you are using the ASA to terminate VPN tunnels.

The ASA 5505 device allows only Stateless Failover, and only while not acting as an Easy VPN hardware client.

Examples

The following example disables failover:

```
hostname(config)# no failover
hostname(config)#
```

Related Commands

Command	Description
clear configure failover	Clears **failover** commands from the running configuration and restores failover default values.
failover active	Switches the standby unit to active.
show failover	Displays information about the failover status of the unit.
show running-config failover	Displays the **failover** commands in the running configuration.

failover active

To switch a standby ASA or failover group to the active state, use the **failover active** command in privileged EXEC mode. To switch an active ASA or failover group to standby, use the **no** form of this command.

failover active [**group** *group_id*]

no failover active [**group** *group_id*]

Syntax Description

group *group_id*	(Optional) Specifies the failover group to make active.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was modified to include failover groups.

Usage Guidelines

Use the **failover active** command to initiate a failover switch from the standby unit, or use the **no failover active** command from the active unit to initiate a failover switch. You can use this feature to return a failed unit to service, or to force an active unit offline for maintenance. If you are not using Stateful Failover, all active connections are dropped and must be reestablished by the clients after the failover occurs.

Switching for a failover group is available only for Active/Active failover. If you enter the **failover active** command on an Active/Active failover unit without specifying a failover group, all groups on the unit become active.

Examples

The following example switches the standby group 1 to active:

```
hostname# failover active group 1
```

Related Commands

Command	Description
failover reset	Moves an ASA from a failed state to standby.

failover exec

To execute a command on a specific unit in a failover pair, use the **failover exec** command in privileged EXEC or global configuration mode.

failover exec {**active** | **standby** | **mate**} *cmd_string*

Syntax Description

active	Specifies that the command is executed on the active unit or failover group in the failover pair. Configuration commands entered on the active unit or failover group are replicated to the standby unit or failover group.
cmd_string	The command to be executed. **Show**, configuration, and EXEC commands are supported.
mate	Specifies that the command is executed on the failover peer.
standby	Specifies that the command is executed on the standby unit or failover group in the failover pair. Configuration commands executed on the standby unit or failover group are not replicated to the active unit or failover group.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

You can use the **failover exec** command to send commands to a specific unit in a failover pair.

Because configuration commands are replicated from the active unit or context to the standby unit or context, you can use the **failover exec** command to enter configuration commands on the correct unit, no matter which unit you are logged in to. For example, if you are logged in to the standby unit, you can use the **failover exec active** command to send configuration changes to the active unit. Those changes are then replicated to the standby unit. Do not use the **failover exec** command to send configuration commands to the standby unit or context; those configuration changes are not replicated to the active unit and the two configurations will no longer be synchronized.

Output from configuration, exec, and **show** commands is displayed in the current terminal session, so you can use the **failover exec** command to issue **show** commands on a peer unit and view the results in the current terminal.

You must have sufficient privileges to execute a command on the local unit to execute the command on the peer unit.

Command Modes

The **failover exec** command maintains a command mode state that is separate from the command mode of your terminal session. By default, the **failover exec** command mode is global configuration mode for the specified device. You can change that command mode by sending the appropriate command (such as the **interface** command) using the **failover exec** command.

Changing **failover exec** command modes for the specified device does not change the command mode for the session that you are using to access the device. For example, if you are logged in to the active unit of a failover pair, and you issue the following command in global configuration mode, you will remain in global configuration mode, but any commands sent using the **failover exec** command will be executed in interface configuration mode:

```
hostname(config)# failover exec interface GigabitEthernet0/1
hostname(config)#
```

Changing commands modes for your current session to the device does not affect the command mode used by the **failover exec** command. For example, if you are in interface configuration mode on the active unit, and you have not changed the **failover exec** command mode, the following command would be executed in global configuration mode:

```
hostname(config-if)# failover exec active router ospf 100
hostname(config-if)#
```

Use the **show failover exec** command to display the command mode on the specified device in which commands sent with the **failover exec** command are executed.

Security Considerations

The **failover exec** command uses the failover link to send commands to and receive the output of the command execution from the peer unit. You should use the **failover key** command to encrypt the failover link to prevent eavesdropping or man-in-the-middle attacks.

Limitations

- If you upgrade one unit using the zero-downtime upgrade procedure and not the other, both units must be running software that supports the **failover exec** command for the command to work.
- Command completion and context help are not available for the commands in the *cmd_string* argument.
- In multiple context mode, you can only send commands to the peer context on the peer unit. To send commands to a different context, you must first change to that context on the unit you are logged in to.
- You cannot use the following commands with the **failover exec** command:
  - **changeto**
  - **debug** (**undebug**)
- If the standby unit is in the failed state, it can still receive commands from the **failover exe**c command if the failure is due to a service card failure; otherwise, the remote command execution will fail.
- You cannot use the **failover exec** command to switch from privileged EXEC mode to global configuration mode on the failover peer. For example, if the current unit is in privileged EXEC mode, and you enter the **failover exec mate configure terminal** command, the **show failover exec**

mate command output will show that the failover exec session is in global configuration mode. However, entering configuration commands for the peer unit using the **failover exec** command will fail until you enter global configuration mode on the current unit.

- You cannot enter recursive **failover exec** commands, such as the **failover exec mate failover exec mate** *command.*
- Commands that require user input or confirmation must use the **/nonconfirm** option.

Examples

The following example shows how to use the **failover exec** command to display failover information on the active unit. The unit on which the command is executed is the active unit, so the command is executed locally.

```
hostname(config)# failover exec active show failover

Failover On
Failover unit Primary
Failover LAN Interface: failover GigabitEthernet0/3 (up)
Unit Poll frequency 1 seconds, holdtime 3 seconds
Interface Poll frequency 3 seconds, holdtime 15 seconds
Interface Policy 1
Monitored Interfaces 2 of 250 maximum
Version: Ours 8.0(2), Mate 8.0(2)
Last Failover at: 09:31:50 jst May 2 2004
        This host: Primary - Active
                Active time: 2483 (sec)
                slot 0: ASA5520 hw/sw rev (1.0/8.0(2)) status (Up Sys)
                  admin Interface outside (192.168.5.101): Normal
                  admin Interface inside (192.168.0.1): Normal
                slot 1: ASA-SSM-20 hw/sw rev (1.0/) status (Up/Up)
        Other host: Secondary - Standby Ready
                Active time: 0 (sec)
                slot 0: ASA5520 hw/sw rev (1.0/8.0(2)) status (Up Sys)
                  admin Interface outside (192.168.5.111): Normal
                  admin Interface inside (192.168.0.11): Normal
                slot 1: ASA-SSM-20 hw/sw rev (1.0/) status (Up/Up)

Stateful Failover Logical Update Statistics
        Link : failover GigabitEthernet0/3 (up)
        Stateful Obj    xmit       xerr       rcv        rerr
        General         328        0          328        0
        sys cmd         329        0          329        0
        up time         0          0          0          0
        RPC services    0          0          0          0
        TCP conn        0          0          0          0
        UDP conn        0          0          0          0
        ARP tbl         0          0          0          0
        Xlate_Timeout   0          0          0          0

        Logical Update Queue Information
                        Cur     Max     Total
        Recv Q:         0       1       329
        Xmit Q:         0       1       329
hostname(config)#
```

The following example uses the **failover exec** command to display the failover status of the peer unit. The command is executed on the the primary unit, which is the active unit, so the information displayed is from the secondary, standby unit.

```
hostname(config)# failover exec mate show failover
```

```
Failover On
Failover unit Secondary
Failover LAN Interface: failover GigabitEthernet0/3 (up)
Unit Poll frequency 1 seconds, holdtime 3 seconds
Interface Poll frequency 3 seconds, holdtime 15 seconds
Interface Policy 1
Monitored Interfaces 2 of 250 maximum
Version: Ours 8.0(2), Mate 8.0(2)
Last Failover at: 09:19:59 jst May 2 2004
        This host: Secondary - Standby Ready
                Active time: 0 (sec)
                slot 0: ASA5520 hw/sw rev (1.0/8.0(2)) status (Up Sys)
                  admin Interface outside (192.168.5.111): Normal
                  admin Interface inside (192.168.0.11): Normal
                slot 1: ASA-SSM-20 hw/sw rev (1.0/) status (Up/Up)
        Other host: Primary - Active
                Active time: 2604 (sec)
                slot 0: ASA5520 hw/sw rev (1.0/8.0(2)) status (Up Sys)
                  admin Interface outside (192.168.5.101): Normal
                  admin Interface inside (192.168.0.1): Normal
                slot 1: ASA-SSM-20 hw/sw rev (1.0/) status (Up/Up)

Stateful Failover Logical Update Statistics
        Link : failover GigabitEthernet0/3 (up)
        Stateful Obj    xmit       xerr       rcv        rerr
        General         344        0          344        0
        sys cmd         344        0          344        0
        up time         0          0          0          0
        RPC services    0          0          0          0
        TCP conn        0          0          0          0
        UDP conn        0          0          0          0
        ARP tbl         0          0          0          0
        Xlate_Timeout   0          0          0          0

        Logical Update Queue Information
                        Cur     Max     Total
        Recv Q:         0       1       344
        Xmit Q:         0       1       344
```

The following example uses the **failover exec** command to display the failover configuration of the failover peer. The command is executed on the primary unit, which is the active unit, so the information displayed is from the secondary, standby unit.

```
hostname(config)# failover exec mate show running-config failover

failover
failover lan interface failover GigabitEthernet0/3
failover polltime unit 1 holdtime 3
failover polltime interface 3 holdtime 15
failover link failover GigabitEthernet0/3
failover interface ip failover 10.0.5.1 255.255.255.0 standby 10.0.5.2
ciscoasa(config)#
```

The following example uses the **failover exec** command to create a context on the active unit from the standby unit. The command is replicated from the active unit back to the standby unit. Note the two "Creating context…" messages. One is from the **failover exec** command output from the peer unit when the context is created, and the other is from the local unit when the replicated command creates the context locally.

```
hostname(config)# show context

Context Name      Class      Interfaces           URL
*admin            default    GigabitEthernet0/0,  disk0:/admin.cfg
                             GigabitEthernet0/1

Total active Security Contexts: 1

! The following is executed in the system execution space on the standby unit.

hostname(config)# failover exec active context text

Creating context 'text'... Done. (2)
Creating context 'text'... Done. (3)

hostname(config)# show context
Context Name      Class      Interfaces           URL
*admin            default    GigabitEthernet0/0,  disk0:/admin.cfg
                             GigabitEthernet0/1
 text             default                         (not entered)

Total active Security Contexts: 2
```

The following example shows the warning that is returned when you use the **failover exec** command to send configuration commands to a failover peer in the standby state:

```
hostname# failover exec mate static (inside,outside) 192.168.5.241 192.168.0.241

       **** WARNING ****
        Configuration Replication is NOT performed from Standby unit to Active unit.
        Configurations are no longer synchronized.
hostname(config)#
```

The following example uses the **failover exec** command to send the **show interface** command to the standby unit:

```
hostname(config)# failover exec standby show interface

Interface GigabitEthernet0/0 "outside", is up, line protocol is up
  Hardware is i82546GB rev03, BW 1000 Mbps
      Auto-Duplex(Half-duplex), Auto-Speed(100 Mbps)
      MAC address 000b.fcf8.c290, MTU 1500
      IP address 192.168.5.111, subnet mask 255.255.255.0
      216 packets input, 27030 bytes, 0 no buffer
      Received 2 broadcasts, 0 runts, 0 giants
      0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
      0 L2 decode drops
      284 packets output, 32124 bytes, 0 underruns
      0 output errors, 0 collisions
      0 late collisions, 0 deferred
      input queue (curr/max blocks): hardware (0/0) software (0/0)
      output queue (curr/max blocks): hardware (0/1) software (0/0)
  Traffic Statistics for "outside":
      215 packets input, 23096 bytes
      284 packets output, 26976 bytes
      0 packets dropped
      1 minute input rate 0 pkts/sec,  21 bytes/sec
      1 minute output rate 0 pkts/sec,  23 bytes/sec
      1 minute drop rate, 0 pkts/sec
      5 minute input rate 0 pkts/sec,  21 bytes/sec
      5 minute output rate 0 pkts/sec,  24 bytes/sec
      5 minute drop rate, 0 pkts/sec
Interface GigabitEthernet0/1 "inside", is up, line protocol is up
```

```
  Hardware is i82546GB rev03, BW 1000 Mbps
      Auto-Duplex(Half-duplex), Auto-Speed(10 Mbps)
      MAC address 000b.fcf8.c291, MTU 1500
      IP address 192.168.0.11, subnet mask 255.255.255.0
      214 packets input, 26902 bytes, 0 no buffer
      Received 1 broadcasts, 0 runts, 0 giants
      0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
      0 L2 decode drops
      215 packets output, 27028 bytes, 0 underruns
      0 output errors, 0 collisions
      0 late collisions, 0 deferred
      input queue (curr/max blocks): hardware (0/0) software (0/0)
      output queue (curr/max blocks): hardware (0/1) software (0/0)
  Traffic Statistics for "inside":
      214 packets input, 23050 bytes
      215 packets output, 23140 bytes
      0 packets dropped
      1 minute input rate 0 pkts/sec,  21 bytes/sec
      1 minute output rate 0 pkts/sec,  21 bytes/sec
      1 minute drop rate, 0 pkts/sec
      5 minute input rate 0 pkts/sec,  21 bytes/sec
      5 minute output rate 0 pkts/sec,  21 bytes/sec
      5 minute drop rate, 0 pkts/sec
Interface GigabitEthernet0/2 "failover", is up, line protocol is up
  Hardware is i82546GB rev03, BW 1000 Mbps
      Auto-Duplex(Full-duplex), Auto-Speed(100 Mbps)
      Description: LAN/STATE Failover Interface
      MAC address 000b.fcf8.c293, MTU 1500
      IP address 10.0.5.2, subnet mask 255.255.255.0
      1991 packets input, 408734 bytes, 0 no buffer
      Received 1 broadcasts, 0 runts, 0 giants
      0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
      0 L2 decode drops
      1835 packets output, 254114 bytes, 0 underruns
      0 output errors, 0 collisions
      0 late collisions, 0 deferred
      input queue (curr/max blocks): hardware (0/0) software (0/0)
      output queue (curr/max blocks): hardware (0/2) software (0/0)
  Traffic Statistics for "failover":
      1913 packets input, 345310 bytes
      1755 packets output, 212452 bytes
      0 packets dropped
      1 minute input rate 1 pkts/sec,  319 bytes/sec
      1 minute output rate 1 pkts/sec,  194 bytes/sec
      1 minute drop rate, 0 pkts/sec
      5 minute input rate 1 pkts/sec,  318 bytes/sec
      5 minute output rate 1 pkts/sec,  192 bytes/sec
      5 minute drop rate, 0 pkts/sec
.
.
.
```

The following example shows the error message returned when issuing an illegal command to the peer unit:

```
hostname# failover exec mate bad command

bad command
  ^
ERROR: % Invalid input detected at '^' marker.
```

The following example shows the error message that is returned when you use the **failover exec** command when failover is disabled:

```
hostname(config)# failover exec mate show failover

ERROR: Cannot execute command on mate because failover is disabled
```

Related Commands

Command	Description
debug fover	Displays failover-related debugging messages.
debug xml	Displays debugging messages for the XML parser used by the **failover exec** command.
show failover exec	Displays the **failover exec** command mode.

failover group

To configure an Active/Active failover group, use the **failover group** command in global configuration mode. To remove a failover group, use the **no** form of this command.

failover group *num*

no failover group *num*

Syntax Description

num	Failover group number. Valid values are 1 or 2.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Global configuration	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You can define a maximum of two failover groups. The **failover group** command can only be added to the system context of devices configured for multiple context mode. You can create and remove failover groups only when failover is disabled.

Entering this command puts you in the failover group command mode. The **primary**, **secondary**, **preempt**, **replication http**, **interface-policy**, **mac address**, and **polltime interface** commands are available in the failover group configuration mode. Use the **exit** command to return to global configuration mode.

Note The **failover polltime interface**, **failover interface-policy**, **failover replication http**, and **failover mac address** commands have no affect in Active/Active failover configurations. They are overridden by the following failover group configuration mode commands: **polltime interface**, **interface-policy**, **replication http**, and **mac address**.

When removing failover groups, you must remove failover group 1 last. Failover group 1 always contains the admin context. Any context not assigned to a failover group defaults to failover group 1. You cannot remove a failover group that has contexts explicitly assigned to it.

Note If you have more than one Active/Active failover pair on the same network, it is possible to have the same default virtual MAC addresses assigned to the interfaces on one pair as are assigned to the interfaces of the other pairs because of the way the default virtual MAC addresses are determined. To avoid having duplicate MAC addresses on your network, make sure you assign each physical interface a virtual active and standby MAC address using the **mac address** command.

Examples

The following partial example shows a possible configuration for two failover groups:

```
hostname(config)# failover group 1
hostname(config-fover-group)# primary
hostname(config-fover-group)# preempt 100
hostname(config-fover-group)# exit
hostname(config)# failover group 2
hostname(config-fover-group)# secondary
hostname(config-fover-group)# preempt 100
hostname(config-fover-group)# exit
hostname(config)#
```

Related Commands

Command	Description
asr-group	Specifies an asymmetrical routing interface group ID.
interface-policy	Specifies the failover policy when monitoring detects interface failures.
join-failover-group	Assigns a context to a failover group.
mac address	Defines virtual mac addresses for the contexts within a failover group.
polltime interface	Specifies the amount of time between hello messages sent to monitored interfaces.
preempt	Specifies that a unit with a higher priority becomes the active unit after a reboot.
primary	Gives the primary unit higher priority for a failover group.
replication http	Specifies HTTP session replication for the selected failover group.
secondary	Gives the secondary unit higher priority for a failover group.

failover interface ip

To specify the IPv4 address and mask or IPv6 address and prefixfor the failover interface and the Stateful Failover interface, use the **failover interface ip** command in global configuration mode. To remove the IP address, use the **no** form of this command.

failover interface ip *if_name* [*ip_address mask* **standby** *ip_address* | *ipv6_address*/*prefix* **standby***ipv6_address*]

no failover interface ip *if_name* [*ip_address mask* **standby** *ip_address* | *ipv6_address*/*prefix* **standby***ipv6_address*]

Syntax Description

if_name	Interface name for the failover or Stateful Failover interface.
ip_address mask	Specifies the IP address and mask for the failover or Stateful Failover interface on the primary device.
ipv6_address	Specifies the IPv6 address fore the failover or Stateful Failover interface on the primary device.
prefix	Indicates how many of the high-order, contiguous bits of the address comprise the IPv6 prefix (the network portion of the IPv6 address).
standby *ip_address*	Specifies the IP address used by the secondary device to communicate with the primary device.
standby*ipv6_address*	Specifies the IPv6 address used by the secondary device to communicate with the primary device.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.
8.2(2)	IPv6 address support was added to the command.

Usage Guidelines

The standby address must be in the same subnet as the primary address.

You can only have one **failvover interface ip** command in the configuration. Therefore, your failover interface can have either an IPv6 or an IPv4 address; you cannot assign both an IPv6 and an IPv4 address to the interface.

Failover and Stateful Failover interfaces are functions of Layer 3, even when the ASA is operating in transparent firewall mode, and are global to the system.

In multiple context mode, you configure failover in the system context (except for the **monitor-interface** command).

This command must be part of the configuration when bootstrapping an ASA for LAN failover.

Examples

The following example shows how to specify an IPv4 address and mask for the failover interface:

```
hostname(config)# failover interface ip lanlink 172.27.48.1 255.255.255.0 standby
172.27.48.2
```

The following example shows how to specify an IPv6 address and prefix for the failover interface:

```
hostname(config)# failover interface ip lanlink 2001:a0a:b00::a0a:b70/64 standby
2001:a0a:b00::a0a:b71
```

Related Commands

Command	Description
clear configure failover	Clears **failover** commands from the running configuration and restores failover default values.
failover lan interface	Specifies the interface used for failover communication.
failover link	Specifies the interface used for Stateful Failover.
monitor-interface	Monitors the health of the specified interface.
show running-config failover	Displays the **failover** commands in the running configuration.

failover interface-policy

To specify the policy for failover when monitoring detects an interface failure, use the **failover interface-policy** command in global configuration mode. To restore the default, use the **no** form of this command.

failover interface-policy *num*[**%**]

no failover interface-policy *num*[**%**]

Syntax Description

num	Specifies a number from 1 to 100 when used as a percentage, or 1 to the maximum number of interfaces when used as a number.
%	(Optional) Specifies that the number *num* is a percentage of the monitored interfaces.

Defaults

The defaults are as follows:

- *num* is 1.
- Monitoring of physical interfaces is enabled by default; monitoring of logical interfaces is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

There is no space between the *num* argument and the optional **%** keyword.

If the number of failed interfaces meets the configured policy and the other ASA is functioning correctly, the ASA marks itself as failed and a failover might occur (if the active ASA is the one that fails). Only interfaces that are designated as monitored by the **monitor-interface** command count towards the policy.

Note This command applies to Active/Standby failover only. In Active/Active failover, you configure the interface policy for each failover group with the **interface-policy** command in failover group configuration mode.

Examples

The following examples show two ways to specify the failover policy:

```
hostname(config)# failover interface-policy 20%

hostname(config)# failover interface-policy 5
```

Related Commands

Command	Description
failover polltime	Specifies the unit and interface poll times.
failover reset	Restores a failed unit to an unfailed state.
monitor-interface	Specifies the interfaces being monitored for failover.
show failover	Displays information about the failover state of the unit.

failover ipsec pre-shared-key

To establish IPsec LAN-to-LAN tunnels on the failover and state links between the units to encrypt all failover communications, use the **failover ipsec pre-shared-key** command in global configuration mode To remove the key, use the **no** form of this command.

failover ipsec pre-shared-key *key*

no failover ipsec pre-shared-key

Syntax Description

0	Specifies an unencrypted password. This is the default.
8	Specifies an encrypted password. If you use a master passphrase (see the **password encryption aes** and **key config-key password-encryption** commands), then the key is encrypted in the configuration. If you are copying from the configuration (for example, from **more system:running-config** output), specify that the key is encrypted by using the **8** keyword. **Note** The **failover ipsec pre-shared-key** shows as ***** in **show running-config** output; this obscured key is not copyable.
key	A *key* that you specify on both units that is used by IKEv2 to establish the tunnels, up to 128 characters in length.

Command Default

0 (unencrypted) is the default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	—	•

Command History

Release	Modification
9.1(2)	We introduced this command.

Usage Guidelines

Unless you secure the failover communications, all information sent over the failover and Stateful Failover links is sent in clear text. If the ASA is used to terminate VPN tunnels, this information includes any usernames, passwords and preshared keys used for establishing the tunnels. Transmitting this sensitive data in clear text could pose a significant security risk. We recommend securing the failover communication if you are using the ASA to terminate VPN tunnels.

We recommend using the **failover ipsec pre-shared-key** method of encryption over the legacy **failover key** method.

You cannot use both IPsec encryption and the legacy **failover key** encryption. If you configure both methods, IPsec is used. However, if you use the master passphrase (see the **password encryption aes** and **key config-key password-encryption** commands), you must first remove the failover key using the **no failover key** command before you configure IPsec encryption.

Note Failover LAN-to-LAN tunnels do not count against the IPsec (Other VPN) license.

Examples

The following example configures an IPsec pre-shared key:

```
hostname(config)# failover ipsec pre-shared-key a3rynsun
```

Related Commands

Command	Description
show running-config failover	Displays the failover commands in the running configuration.
show vpn-sessiondb	Shows information about VPN tunnels, including the failover IPsec tunnels.

failover key

To specify the key for encrypted and authenticated communication between units in a failover pair (over the failover and state links), use the **failover key** command in global configuration mode. To remove the key, use the **no** form of this command.

failover key [**0** | **8**] {**hex** *key* | *shared_secret*}

no failover key

Syntax Description

0	Specifies an unencrypted password. This is the default.
8	Specifies an encrypted password. If you use a master passphrase (see the **password encryption aes** and **key config-key password-encryption** commands), then the shared secret is encrypted in the configuration. If you are copying from the configuration (for example, from **more system:running-config** output), specify that the shared secret is encrypted by using the **8** keyword. **Note** The **failover key** shared secret shows as ***** in **show running-config** output; this obscured key is not copyable.
hex *key*	Specifies a hexadecimal value for the encryption key. The key must be 32 hexadecimal characters (0-9, a-f).
shared_secret	Specifies an alphanumeric shared secret. The secret can be from 1 to 63 characters. Valid character are any combination of numbers, letters, or punctuation. The shared secret is used to generate the encryption key.

Defaults

0 (unencrypted) is the default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was modified from **failover lan key** to **failover key**.
7.0(4)	This command was modified to include the **hex** *key* keyword and argument.
8.3(1)	This command was modified to support the master passphrase with the **0** and **8** keywords.

Usage Guidelines

Unless you secure the failover communications, all information sent over the failover and Stateful Failover links is sent in clear text. If the ASA is used to terminate VPN tunnels, this information includes any usernames, passwords and preshared keys used for establishing the tunnels. Transmitting this sensitive data in clear text could pose a significant security risk. We recommend securing the failover communication if you are using the ASA to terminate VPN tunnels.

We recommend using the **failover ipsec pre-shared-key** method of encryption over the legacy **failover key** method.

You cannot use both IPsec encryption (the **failover ipsec pre-shared-key** command) and the legacy **failover key** encryption. If you configure both methods, IPsec is used. However, if you use the master passphrase (see the **password encryption aes** and **key config-key password-encryption** commands), you must first remove the failover key using the **no failover key** command before you configure IPsec encryption.

Examples

The following example shows how to specify a shared secret for securing failover communication between units in a failover pair:

```
hostname(config)# failover key abcdefg
```

The following example shows how to specify a hexadecimal key for securing failover communication between two units in a failover pair:

```
hostname(config)# failover key hex 6a1ed228381cf5c68557cb0c32e614dc
```

The following example shows an encrypted password copied and pasted from **more system:running-config** output:

```
hostname(config)# failover key 8 TPZCVNgdegLhWMa
```

Related Commands

Command	Description
show running-config failover	Displays the failover commands in the running configuration.

failover lan interface

To specify the interface used for failover communication, use the **failover lan interface** command in global configuration mode. To remove the failover interface, use the **no** form of this command.

failover lan interface *if_name* {*phy_if*[.*sub_if*] | *vlan_if*]}

no failover lan interface [*if_name* {*phy_if*[.*sub_if*] | *vlan_if*]}]

Syntax Description

if_name	Specifies the name of the ASA interface dedicated to failover.
phy_if	Specifies the physical interface.
sub_if	(Optional) Specifies a subinterface number.
vlan_if	Used on the ASA 5505 to specify a VLAN interface as the failover link.

Defaults

Not configured.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was modified to include the *phy_if* argument.
7.2(1)	This command was modified to include the *vlan_if* argument.

Usage Guidelines

LAN failover requires a dedicated interface for passing failover traffic. However you can also use the LAN failover interface for the Stateful Failover link.

Note If you use the same interface for both LAN failover and Stateful Failover, the interface needs enough capacity to handle both the LAN-based failover and Stateful Failover traffic.

You can use any unused Ethernet interface on the device as the failover interface. You cannot specify an interface that is currently configured with a name. The failover interface is not configured as a normal networking interface; it exists only for failover communications. This interface should only be used for the failover link (and optionally for the state link). You can connect the LAN-based failover link by using a dedicated switch with no hosts or routers on the link or by using a crossover Ethernet cable to link the units directly.

Note When using VLANs, use a dedicated VLAN for the failover link. Sharing the failover link VLAN with any other VLANs can cause intermittent traffic problems and ping and ARP failures. If you use a switch to connect the failover link, use dedicated interfaces on the switch and ASA for the failover link; do not share the interface with subinterfaces carrying regular network traffic.

On systems running in multiple context mode, the failover link resides in the system context. This interface and the state link, if used, are the only interfaces that you can configure in the system context. All other interfaces are allocated to and configured from within security contexts.

Note The IP address and MAC address for the failover link do not change at failover.

The **no** form of this command also clears the failover interface IP address configuration.

This command must be part of the configuration when bootstrapping an ASA for LAN failover.

Caution All information sent over the failover and Stateful Failover links is sent in clear text unless you secure the communication with a failover key. If the ASA is used to terminate VPN tunnels, this information includes any user names, passwords and preshared keys used for establishing the tunnels. Transmitting this sensitive data in clear text could pose a significant security risk. We recommend securing the failover communication with a failover key if you are using the ASA to terminate VPN tunnels.

Examples

The following example configures the failover LAN interface using a subinterface on an ASA 5500 series (except for the ASA 5505):

```
hostname(config)# failover lan interface folink GigabitEthernet0/3.1
```

The following example configures the failover LAN interface on the ASA 5505:

```
hostname(config)# failover lan interface folink Vlan6
```

Related Commands

Command	Description
failover lan unit	Specifies the LAN-based failover primary or secondary unit.
failover link	Specifies the Stateful Failover interface.

failover lan unit

To configure the ASA as either the primary or secondary unit in a LAN failover configuration, use the **failover lan unit** command in global configuration mode. To restore the default setting, use the **no** form of this command.

failover lan unit {**primary** | **secondary**}

no failover lan unit {**primary** | **secondary**}

Syntax Description

primary	Specifies the ASA as a primary unit.
secondary	Specifies the ASA as a secondary unit.

Defaults

Secondary.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

For Active/Standby failover, the primary and secondary designation for the failover unit refers to which unit becomes active at boot time. The primary unit becomes the active unit at boot time when the following occurs:

- The primary and secondary unit both complete their boot sequence within the first failover poll check.
- The primary unit boots before the secondary unit.

If the secondary unit is already active when the primary unit boots, the primary unit does not take control; it becomes the standby unit. In this case, you need to enter the **no failover active** command on the secondary (active) unit to force the primary unit back to active status.

For Active/Active failover, each failover group is assigned a primary or secondary unit preference. This preference determines on which unit in the failover pair the contexts in the failover group become active at startup when both units start simultaneously (within the failover polling period).

This command must be part of the configuration when bootstrapping an ASA for LAN failover.

Examples

The following example sets the ASA as the primary unit in LAN-based failover:

```
hostname(config)# failover lan unit primary
```

Related Commands

Command	Description
failover lan interface	Specifies the interface used for failover communication.

failover link

To specify the Stateful Failover interface, use the **failover link** command in global configuration mode. To remove the Stateful Failover interface, use the **no** form of this command.

failover link *if_name* [*phy_if*]

no failover link

Syntax Description

if_name	Specifies the name of the ASA interface dedicated to Stateful Failover.
phy_if	(Optional) Specifies the physical or logical interface port. If the Stateful Failover interface is sharing the interface assigned for failover communication or sharing a standard firewall interface, then this argument is not required.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was modified to include the *phy_if* argument.
7.0(4)	This command was modified to accept standard firewall interfaces.

Usage Guidelines

This command is not available on the ASA 5505, which does not support Stateful Failover.

The physical or logical interface argument is required when not sharing the failover communication or a standard firewall interface.

The **failover link** command enables Stateful Failover. Enter the **no failover link** command to disable Stateful Failover. If you are using a dedicated Stateful Failover interface, the **no failover link** command also clears the Stateful Failover interface IP address configuration.

To use Stateful Failover, you must configure a Stateful Failover link to pass all state information. You have three options for configuring a Stateful Failover link:

- You can use a dedicated Ethernet interface for the Stateful Failover link.
- If you are using LAN-based failover, you can share the failover link.
- You can share a regular data interface, such as the inside interface. However, this option is not recommended.

If you are using a dedicated Ethernet interface for the Stateful Failover link, you can use either a switch or a crossover cable to directly connect the units. If you use a switch, no other hosts or routers should be on this link.

Note Enable the PortFast option on Cisco switch ports that connect directly to the ASA.

If you are using the failover link as the Stateful Failover link, you should use the fastest Ethernet interface available. If you experience performance problems on that interface, consider dedicating a separate interface for the Stateful Failover interface.

If you use a data interface as the Stateful Failover link, you will receive the following warning when you specify that interface as the Stateful Failover link:

```
******* WARNING ***** WARNING ******* WARNING ****** WARNING  *********
  Sharing Stateful failover interface with regular data interface is not
  a recommended configuration due to performance and security concerns.
******* WARNING ***** WARNING ******* WARNING ****** WARNING  *********
```

Sharing a data interface with the Stateful Failover interface can leave you vulnerable to replay attacks. Additionally, large amounts of Stateful Failover traffic may be sent on the interface, causing performance problems on that network segment.

Note Using a data interface as the Stateful Failover interface is only supported in single context, routed mode.

In multiple context mode, the Stateful Failover link resides in the system context. This interface and the failover interface are the only interfaces in the system context. All other interfaces are allocated to and configured from within security contexts.

Note The IP address and MAC address for the Stateful Failover link does not change at failover unless the Stateful Failover link is configured on a regular data interface.

Caution All information sent over the failover and Stateful Failover links is sent in clear text unless you secure the communication with a failover key. If the ASA is used to terminate VPN tunnels, this information includes any user names, passwords and preshared keys used for establishing the tunnels. Transmitting this sensitive data in clear text could pose a significant security risk. We recommend securing the failover communication with a failover key if you are using the ASA to terminate VPN tunnels.

Examples

The following example shows how to specify a dedicated interface as the Stateful Failover interface. The interface in the example does not have an existing configuration.

```
hostname(config)# failover link stateful_if e4
INFO: Non-failover interface config is cleared on Ethernet4 and its sub-interfaces
```

Related Commands

Command	Description
failover interface ip	Configures the IP address of the **failover** command and Stateful Failover interface.
failover lan interface	Specifies the interface used for failover communication.

failover mac address

To specify the failover virtual MAC address for a physical interface, use the **failover mac address** command in global configuration mode. To remove the virtual MAC address, use the **no** form of this command.

failover mac address *phy_if active_mac standby_mac*

no failover mac address *phy_if active_mac standby_mac*

Syntax Description

active_mac	The MAC address assigned to the specified interface the active ASA. The MAC address must be entered in h.h.h format, where h is a 16-bit hexadecimal number.
phy_if	The physical name of the interface to set the MAC address.
standby_mac	The MAC address assigned to the specified interface of the standby ASA. The MAC address must be entered in h.h.h format, where h is a 16-bit hexadecimal number.

Defaults

Not configured.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **failover mac address** command lets you configure virtual MAC addresses for an Active/Standby failover pair. If virtual MAC addresses are not defined, then when each failover unit boots it uses the burned-in MAC addresses for its interfaces and exchanges those addresses with its failover peer. The MAC addresses for the interfaces on the primary unit are used for the interfaces on the active unit.

However, if both units are not brought online at the same time and the secondary unit boots first and becomes active, it uses the burned-in MAC addresses for its own interfaces. When the primary unit comes online, the secondary unit will obtain the MAC addresses from the primary unit. This change can disrupt network traffic. Configuring virtual MAC addresses for the interfaces ensures that the secondary unit uses the correct MAC address when it is the active unit, even if it comes online before the primary unit.

The **failover mac address** command is unnecessary (and therefore cannot be used) on an interface configured for LAN-based failover because the **failover lan interface** command does not change the IP and MAC addresses when failover occurs. This command has no affect when the ASA is configured for Active/Active failover.

When adding the **failover mac address** command to your configuration, it is best to configure the virtual MAC address, save the configuration to flash memory, and then reload the failover pair. If the virtual MAC address is added when there are active connections, then those connections stop. Also, you must write the complete configuration, including the **failover mac address** command, to the flash memory of the secondary ASA for the virtual MAC addressing to take effect.

If the **failover mac address** is specified in the configuration of the primary unit, it should also be specified in the bootstrap configuration of the secondary unit.

Note This command applies to Active/Standby failover only. In Active/Active failover, you configure the virtual MAC address for each interface in a failover group with the **mac address** command in failover group configuration mode.

You can also set the MAC address using other commands or methods, but we recommend using only one method. If you set the MAC address using multiple methods, the MAC address used depends on many variables, and might not be predictable.

Examples

The following example configures the active and standby MAC addresses for the interface named intf2:

```
hostname(config)# failover mac address Ethernet0/2 00a0.c969.87c8 00a0.c918.95d8
```

Related Commands

Command	Description
show interface	Displays interface status, configuration, and statistics.

failover polltime

To specify the failover unit poll and hold times, use the **failover polltime** command in global configuration mode. To restore the default poll and hold times, use the **no** form of this command.

failover polltime [**unit**] [**msec**] *poll_time* [**holdtime** [**msec**] *time*]

no failover polltime [**unit**] [**msec**] *poll_time* [**holdtime** [**msec**] *time*]

Syntax Description

holdtime *time*	(Optional) Sets the time during which a unit must receive a hello message on the failover link, after which the peer unit is declared failed. Valid values are from 3 to 45 seconds or from 800 to 999 milliseconds if the optional **msec** keyword is used.
msec	(Optional) Specifies that the given time is in milliseconds.
poll_time	Sets the amount of time between hello messages. Valid values are from 1 to 15 seconds or from 200 to 999 milliseconds if the optional **msec** keyword is used.
unit	(Optional) Indicates that the command is used for unit poll and hold times. Adding this keyword to the command does not have any affect on the command, but it can make it easier to differentiate this command from the **failover polltime interface** commands in the configuration.

Defaults

The default values on the ASA are as follows:

- The *poll_time* is 1 second.
- The **holdtime** *time* is 15 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was changed from the **failover poll** command to the **failover polltime** command and now includes **unit** and **holdtime** keywords.
7.2(1)	The **msec** keyword was added to the **holdtime** keyword. The **polltime** minimum value was reduced to 200 milliseconds from 500 milliseconds. The **holdtime** minimum value was reduced to 800 milliseconds from 3 seconds.

Usage Guidelines

You cannot enter a **holdtime** value that is less than three times the unit poll time. With a faster poll time, the ASA can detect failure and trigger failover faster. However, faster detection can cause unnecessary switch overs when the network is temporarily congested.

If a unit does not hear hello packet on the failover communication interface or cable for one polling period, additional testing occurs through the remaining interfaces. If there is still no response from the peer unit during the hold time, the unit is considered failed and, if the failed unit is the active unit, the standby unit takes over as the active unit.

You can include both **failover polltime** [**unit**] and **failover polltime interface** commands in the configuration.

Note When CTIQBE traffic is passed through an ASA in a failover configuration, you should decrease the failover hold time on the ASA to below 30 seconds. The CTIQBE keepalive timeout is 30 seconds and may time out before failover occurs in a failover situation. If CTIQBE times out, Cisco IP SoftPhone connections to Cisco CallManager are dropped, and the IP SoftPhone clients need to reregister with the CallManager.

Examples

The following example changes the unit poll time frequency to 3 seconds:

```
hostname(config)# failover polltime 3
```

The following example configures the ASA to send a hello packet every 200 milliseconds and to fail over in 800 milliseconds if no hello packets are received on the failover interface within that time. The optional **unit** keyword is included in the command.

```
hostname(config)# failover polltime unit msec 200 holdtime msec 800
```

Related Commands

Command	Description
failover polltime interface	Specifies the interface poll and hold times for Active/Standby failover configurations.
polltime interface	Specifies the interface poll and hold times for Active/Active failover configurations.
show failover	Displays failover configuration information.

failover polltime interface

To specify the data interface poll and hold times in an Active/Standby failover configuration, use the **failover polltime interface** command in global configuration mode. To restore the default poll and hold times, use the **no** form of this command.

failover polltime interface [**msec**] *time* [**holdtime** *time*]

no failover polltime interface [**msec**] *time* [**holdtime** *time*]

Syntax Description

holdtime *time*	(Optional) Sets the time during which a data interface must receive a hello message on the data interface, after which the peer is declared failed. Valid values are from 5 to 75 seconds.
interface *time*	Specifies the poll time for interface monitoring. Valid values range from 1 to 15 seconds. If the optional **msec** keyword is used, the valid values are from 500 to 999 milliseconds.
msec	(Optional) Specifies that the given time is in milliseconds.

Defaults

The default values are as follows:

- The poll *time* is 5 seconds.
- The **holdtime** *time* is 5 times the poll *time*.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was changed from the **failover poll** command to the **failover polltime** command and includes **unit**, **interface**, and **holdtime** keywords.
7.2(1)	The optional **holdtime** *time* and the ability to specify the poll time in milliseconds was added.

Usage Guidelines

Use the **failover polltime interface** command to change the frequency that hello packets are sent out on data interfaces. This command is available for Active/Standby failover only. For Active/Active failover, use the **polltime interface** command in failover group configuration mode instead of the **failover polltime interface** command.

You cannot enter a **holdtime** value that is less than five times the unit poll time. With a faster poll time, the ASA can detect failure and trigger failover faster. However, faster detection can cause unnecessary switchovers when the network is temporarily congested. Interface testing begins when a hello packet is not heard on the interface for over half the hold time.

You can include both **failover polltime unit** and **failover polltime interface** commands in the configuration.

Note When CTIQBE traffic is passed through an ASA in a failover configuration, you should decrease the failover hold time on the ASA to below 30 seconds. The CTIQBE keepalive timeout is 30 seconds and may time out before failover occurs in a failover situation. If CTIQBE times out, Cisco IP SoftPhone connections to Cisco CallManager are dropped, and the IP SoftPhone clients need to reregister with the CallManager.

Examples

The following example sets the interface poll time frequency to 15 seconds:

```
hostname(config)# failover polltime interface 15
```

The following example sets the interface poll time frequency to 500 milliseconds and the hold time to 5 seconds:

```
hostname(config)# failover polltime interface msec 500 holdtime 5
```

Related Commands

Command	Description
failover polltime	Specifies the unit failover poll and hold times.
polltime interface	Specifies the interface polltime for Active/Active failover configurations.
show failover	Displays failover configuration information.

failover reload-standby

To force the standby unit to reboot, use the **failover reload-standby** command in privileged EXEC mode.

failover reload-standby

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Use this command when your failover units do not synchronize. The standby unit restarts and resynchronizes to the active unit after it finishes booting.

Examples

The following example shows how to use the **failover reload-standby** command on the active unit to force the standby unit to reboot:

```
hostname# failover reload-standby
```

Related Commands

Command	Description
write standby	Writes the running configuration to the memory on the standby unit.

failover replication http

To enable HTTP (port 80) connection replication, use the **failover replication http** command in global configuration mode. To disable HTTP connection replication, use the **no** form of this command.

failover replication http

no failover replication http

Syntax Description

This command has no arguments or keywords.

Defaults

Disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was changed from **failover replicate http** to **failover replication http**.

Usage Guidelines

By default, the ASA does not replicate HTTP session information when Stateful Failover is enabled. Because HTTP sessions are typically short-lived, and because HTTP clients typically retry failed connection attempts, not replicating HTTP sessions increases system performance without causing serious data or connection loss. The **failover replication http** command enables the stateful replication of HTTP sessions in a Stateful Failover environment, but could have a negative affect on system performance.

In Active/Active failover configurations, you control HTTP session replication per failover group using the **replication http** command in failover group configuration mode.

Examples

The following example shows how to enable HTTP connection replication:

```
hostname(config)# failover replication http
```

Related Commands

Command	Description
replication http	Enables HTTP session replication for a specific failover group.
show running-config failover	Displays the **failover** commands in the running configuration.

failover replication rate

To configure the bulk-sync connection replication rate, use the **failover replication rate** command in global configuration mode. To restore the default setting, use the **no** form of this command.

failover replication rate *rate*

no failover replication rate

Syntax Description

rate	Sets the number of connections per second. Values and the default setting depend on your model's maximum connections per second.

Command Default

Varies depending on your model.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
8.4(4.1)/8.5(1.7)	We introduced this command.

Usage Guidelines

You can configure the rate at which the ASA replicates connections to the standby unit when using Stateful Failover. By default, connections are replicated to the standby unit during a 15 second period. However, when a bulk sync occurs (for example, when you first enable failover), 15 seconds may not be long enough to sync large numbers of connections due to a limit on the maximum connections per second. For example, the maximum connections on the ASASM is 8 million; replicating 8 million connections in 15 seconds means creating 533 K connections per second. However, the maximum connections allowed per second is 300 K. You can now specify the rate of replication to be less than or equal to the maximum connections per second, and the sync period will be adjusted until all the connections are synced.

Examples

The following example sets the failover replication rate to 20000 connections per second:

```
hostname(config)# failover replication rate 20000
```

Related Commands

Command	Description
failover rate http	Enables HTTP connection replication.

failover reset

To restore a failed ASA to an unfailed state, use the **failover reset** command in privileged EXEC mode.

failover reset [**group** *group_id*]

Syntax Description

group	(Optional) Specifies a failover group. The **group** keyword applies to Active/Active failover only.
group_id	Failover group number.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was modified to add the optional failover group ID.

Usage Guidelines

The **failover reset** command allows you to change the failed unit or group to an unfailed state. The **failover reset** command can be entered on either unit, but we recommend that you always enter the command on the active unit. Entering the **failover reset** command at the active unit will "unfail" the standby unit.

You can display the failover status of the unit with the **show failover** or **show failover state** commands.

There is no **no** form of this command.

In Active/Active failover, entering **failover reset** resets the whole unit. Specifying a failover group with the command resets only the specified group.

Examples

The following example shows how to change a failed unit to an unfailed state:

```
hostname# failover reset
```

Related Commands

Command	Description
failover interface-policy	Specifies the policy for failover when monitoring detects interface failures.
show failover	Displays information about the failover status of the unit.

failover timeout

To specify the failover reconnect timeout value for asymmetrically routed sessions, use the **failover timeout** command in global configuration mode. To restore the default timeout value, use the **no** form of this command.

failover timeout *hh*[**:***mm*:[**:***ss*]

no failover timeout [*hh*[**:***mm*:[**:***ss*]]

Syntax Description

hh	Specifies the number of hours in the timeout value. Valid values range from -1 to 1193. By default, this value is set to 0. Setting this value to -1 disables the timeout, allowing connections to reconnect after any amount of time. Setting this value to 0, without specifying any of the other timeout values, sets the command back to the default value, which prevents connections from reconnecting. Entering **no failover timeout** command also sets this value to the default (0). **Note** When set to the default value, this command does not appear in the running configuration.
mm	(Optional) Specifies the number of minutes in the timeout value. Valid values range from 0 to 59. By default, this value is set to 0.
ss	(Optional) Specifies the number of seconds in the timeout value. Valid values range from 0 to 59. By default, this value is set to 0.

Defaults

By default, *hh*, *mm*, and *ss* are 0, which prevents connections from reconnecting.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was modified to appear in the command listing.

Usage Guidelines

This command is used in conjunction with the **static** command with the **nailed** option. The **nailed** option allows connections to be reestablished in a specified amount of time after bootup or a system goes active. The **failover timeout** command specifies that amount of time. If not configured, the connections cannot be reestablished. The **failover timeout** command does not affect the **asr-group** command.

Note Adding the **nailed** option to the **static** command causes TCP state tracking and sequence checking to be skipped for the connection.

Entering the **no** form of this command restores the default value. Entering **failover timeout 0** also restores the default value. When set to the default value, this command does not appear in the running configuration.

Examples

The following example switches the standby group 1 to active:

```
hostname(config)# failover timeout 12:30
hostname(config)# show running-config failover
no failover
failover timeout 12:30:00
```

Related Commands

Command	Description
static	Configures a persistent one-to-one address translation rule by mapping a local IP address to a global IP address.

fallback

To configure the fallback timers that the Cisco Intercompany Media Engine uses to fallback from VoIP to PSTN when connection integrity degrades, use the **fallback** command in uc-ime configuration mode. To remove the fallback settings, use the **no** form of this command.

fallback {**sensitivity-file** *filename* | **monitoring timer** *timer_millisec* **hold-down timer** *timer_sec*}

no fallback fallback {**sensitivity-file** *filename* | **monitoring timer** *timer_millisec* **hold-down timer** *timer_sec*}

Syntax Description

filename	Specifies the filename of the sensitivity file. Enter the name of a file on disk that includes the .fbs file extension. To specify the filename, you can include the path on the local disk, for example `disk0:/file001.fbs`.
hold-down timer	Sets the amount of time that ASA waits before notifying Cisco UCM whether to fall back to PSTN.
monitoring timer	Sets the time between which the ASA samples the RTP packets received from the Internet. The ASA uses the data sample to determine if fallback to the PSTN is needed for a call.
sensitivity-file	Specifies the file to use for mid-call PSTN fallback. The sensitivity file is parsed by the ASA and entered in the RMA library.
timer_millisec	Specifies the length of the monitoring timer in milliseconds. Enter an integer within the range 10-600. By default, the length of the monitoring timer is 100 milliseconds.
timer_sec	Secifies the length of the hold-down timer in seconds. Enter an integer within the range 10-360. By default, the length of the hold-down timer is 20 seconds.

Defaults

By default, the length of the monitoring timer is 100 milliseconds.

By default, the length of the hold-down timer is 20 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Uc-ime configuration	•	—	•	—	—

Command History

Release	Modification
8.3(1)	The command was introduced.

Usage Guidelines

Specifies the fallback timer for the Cisco Intercompany Media Engine.

Internet connections can vary wildly in their quality and vary over time. Therefore, even if a call is sent over VoIP because the quality of the connection was good, the connection quality might worsen mid-call. To ensure an overall good experience for the end user, Cisco Intercompany Media Engine attempts to perform a mid-call fallback.

Performing a mid-call fallback requires the ASA to monitor the RTP packets coming from the Internet and send information into an RTP Monitoring Algorithm (RMA) API, which will indicates to the ASA whether fallback is required. If fallback is required, the ASA sends a REFER message to Cisco UCM to tell it that it needs to fallback the call to PSTN.

Note You cannot change the fallback timer when the Cisco Intercompany Media Engine proxy is enabled for SIP inspection. Remove the Cisco Intercompany Media Engine proxy from SIP inspection before changing the fallback timer.

Examples

The following example shows how to configure the Cisco Intercompany Media Engine while specifying the fallback timers:

```
hostname(config)# uc-ime local_uc-ime_proxy
hostname(config-uc-ime)# media-termination ime-media-term
hostname(config-uc-ime)# ucm address 192.168.10.30 trunk-security-mode non-secure
hostname(config-uc-ime)# ticket epoch 1 password password1234
hostname(config-uc-ime)# fallback monitoring timer 120
hostname(config-uc-ime)# fallback hold-down timer 30
```

The following example shows how to configure the Cisco Intercompany Media Engine while specifying a sensitivity file:

```
hostname(config)# uc-ime local_uc-ime_proxy
hostname(config-uc-ime)# media-termination ime-media-term
hostname(config-uc-ime)# ucm address 192.168.10.30 trunk-security-mode non-secure
hostname(config-uc-ime)# ticket epoch 1 password password1234
hostname(config-uc-ime)# fallback sensitivity-file local_uc-ime_fallback_policy
```

Related Commands

Command	Description
show running-config uc-ime	Shows the running configuration of the Cisco Intercompany Media Engine proxy.
show uc-ime	Displays statistical or detailed information about fallback notifications, mapping service sessions, and signaling sessions.
uc-ime	Creates the Cisco Intercompany Media Engine proxy instance on the ASA.

CHAPTER 22

file-bookmarks through functions Commands

file-bookmarks

To customize the File Bookmarks title or the File Bookmarks links on the WebVPN Home page that is displayed to authenticated WebVPN users, use the **file-bookmarks** command from webvpn customization configuration mode. To remove the command from the configuration and cause the value to be inherited, use the **no** form of this command.

file-bookmarks {**link** {**style** *value*} | **title** {**style** *value* | **text** *value*}}

no file-bookmarks {**link** {**style** *value*} | **title** {**style** *value* | **text** *value*}}

Syntax Description

link	Specifies a change to the links.
title	Specifies a change to the title.
style	Specifies a change to the HTML style.
text	Specifies a change to the text.
value	The actual text or CSS parameters to display (the maximum number is 256 characters).

Defaults

The default link style is color:#669999;border-bottom: 1px solid #669999;text-decoration:none.

The default title style is color:#669999;background-color:#99CCCC;font-weight:bold.

The default title text is “File Folder Bookmarks”.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Webvpn customization configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

The **style** option is expressed as any valid CSS parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the W3C website at www.w3.org. Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at www.w3.org/TR/CSS21/propidx.html.

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.

- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma-separated entry indicates the level of intensity of each color to combine with the others.
- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.

Note To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

Examples

The following example customizes the File Bookmarks title to "Corporate File Bookmarks":

```
F1-asa1(config)# webvpn
F1-asa1(config-webvpn)# customization cisco
F1-asa1(config-webvpn-custom)# file-bookmarks title text Corporate File Bookmarks
```

Related Commands

Command	Description
application-access	Customizes the Application Access box of the WebVPN Home page.
browse-networks	Customizes the Browse Networks box of the WebVPN Home page.
web-applications	Customizes the Web Application box of the WebVPN Home page.
web-bookmarks	Customizes the Web Bookmarks title or links on the WebVPN Home page.

file-browsing

To enable or disable CIFS/FTP file browsing for file servers or shares, use the **file-browsing** command in dap webvpn configuration mode.

file-browsing enable | disable

Syntax Description

enable | disable	Enables or disables the ability to browse for file servers or shares.

Defaults

No default value or behaviors.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Dap webvpn configuration	•	•	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

The following usage notes apply to file browsing:

- File browsing does not support internationalization.
- Browsing requires NBNS (Master Browser or WINS). If that fails or is not configured, use DNS.

The ASA can apply attribute values from a variety of sources. It applies them according to the following hierarchy:

1. DAP record
2. Username
3. Group policy
4. Group policy for the tunnel group
5. Default group policy

It follows that DAP values for an attribute have a higher priority than those configured for a user, group policy, or tunnel group.

When you enable or disable an attribute for a DAP record, the ASA applies that value and enforces it. For example, when you disable file browsing in dap webvpn configuration mode, the ASA looks no further for a value. When you instead set no value for the **file-browsing** command, the attribute is not present in the DAP record, so the ASA moves down to the AAA attribute in the username, and if necessary, the group policy to find a value to apply.

Examples

The following example shows how to enable file browsing for the DAP record called Finance:

```
hostname (config)# config-dynamic-access-policy-record Finance
hostname(config-dynamic-access-policy-record)# webvpn
hostname(config-dap-webvpn)# file-browsing enable
hostname(config-dap-webvpn)#
```

Related Commands

Command	Description
dynamic-access-policy-record	Creates a DAP record.
file-entry	Enables or disables the ability to enter file server names to access.

file-encoding

To specify the character encoding for pages from Common Internet File System servers, use the **file-encoding** command in webvpn configuration mode. To remove the values of the file-encoding attribute use the **no** form of this command.

file-encoding {**server-name** | **server-ip-addr**} *charset*

no file-encoding {**server-name** | **server-ip-addr**}

Syntax Description

charset	String consisting of up to 40 characters, and equal to one of the valid character sets identified in http://www.iana.org/assignments/character-sets. You can use either the name or the alias of a character set listed on that page. Examples include iso-8859-1, shift_jis, and ibm850. The string is case-insensitive. The command interpreter converts upper case to lower case in the ASA configuration.
server-ip-addr	IP address, in dotted-decimal notation, of the CIFS server for which you want to specify character encoding.
server-name	Name of the CIFS server for which you want to specify character encoding. The ASA retains the case that you specify, although it ignores the case when matching the name to a server.

Defaults

Pages from all CIFS servers that do not have explicit file encoding entries in the WebVPN configuration inherit the character encoding value from the character encoding attribute.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

Enter file encoding entries for all CIFS servers that require character encoding entries that differ from the value of the webvpn character encoding attribute.

The WebVPN portal pages downloaded from the CIFS server to the WebVPN user encode the value of the WebVPN file encoding attribute identifying the server, or if one does not, they inherit the value of the character encoding attribute. The remote user's browser maps this value to an entry in its character encoding set to determine the correct character set to use. The WebVPN portal pages do not specify a

value if WebVPN configuration does not specify a file encoding entry for the CIFS server and the character encoding attribute is not set. The remote browser uses its own default encoding if the WebVPN portal page does not specify the character encoding, or if it specifies a character encoding value that the browser does not support.

The mapping of CIFS servers to their appropriate character encoding, globally with the WebVPN character encoding attribute, and individually with file encoding overrides, provides for the accurate handling and display of CIFS pages when the correct rendering of file names or directory paths, as well as pages, are an issue.

Note The character encoding and file encoding values do not exclude the font family to be used by the browser. You need to complement the setting of one of these values with the **page style** command in webvpn customization command mode to replace the font family if you are using Japanese Shift_JIS character encoding, as shown in the following example, or enter the **no page style** command in webvpn customization command mode to remove the font family.

Examples

The following example sets the file encoding attribute of the CIFS server named "CISCO-server-jp" to support Japanese Shift_JIS characters, removes the font family, and retains the default background color:

```
hostname(config)# webvpn
hostname(config-webvpn)# file-encoding CISCO-server-jp shift_jis
F1-asa1(config-webvpn)# customization DfltCustomization
F1-asa1(config-webvpn-custom)# page style background-color:white
F1-asa1(config-webvpn-custom)#
```

The following example sets the file encoding attribute of the CIFS server 10.86.5.174 to support IBM860 (alias "CP860") characters:

```
hostname(config)# webvpn
hostname(config-webvpn)# file-encoding 10.86.5.174 cp860
hostname(config-webvpn)
```

Related Commands

Command	Description
character-encoding	Specifies the global character encoding used in all WebVPN portal pages except for pages from servers specified in file encoding entries in the WebVPN configuration.
show running-config webvpn	Displays the running configuration for WebVPN. Use the **all** keyword to include the default configuration.
debug webvpn cifs	Displays debugging messages about the Common Internet File System.

file-entry

To enable or disable the ability of a user to enter file server names to access, use the **file-entry** command in dap webvpn configuration mode.

file-entry enable | disable

Syntax Description

enable | disable	Enables or disables the ability to enter file server names to access.

Defaults

No default value or behaviors.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Dap webvpn configuration	•	•	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

The ASA can apply attribute values from a variety of sources according to the following hierarchy:

1. DAP record
2. Username
3. Group policy
4. Group policy for the Connection Profile (tunnel group)
5. Default group policy

It follows that DAP values for an attribute have a higher priority than those configured for a user, group policy, or Connection Profile.

When you enable or disable an attribute for a DAP record, the ASA applies that value and enforces it. For example, when you disable file entry in dap webvpn configuration mode, the ASA looks no further for a value. When you instead set no value for the **file-entry** command, the attribute is not present in the DAP record, so the ASA moves down to the AAA attribute in the username, and if necessary, the group policy to find a value to apply.

Examples

The following example shows how to enable file entry for the DAP record called Finance:

```
hostname (config)# config-dynamic-access-policy-record Finance
hostname(config-dynamic-access-policy-record)# webvpn
hostname(config-dap-webvpn)# file-entry enable
```

```
hostname(config-dap-webvpn)#
```

Related Commands

Command	Description
dynamic-access-policy-record	Creates a DAP record.
file-browsing	Enables or disables the ability to browse for file servers or shares.

filter

To specify the name of the access list to use for WebVPN connections for this group policy or username, use the **filter** command in webvpn configuration mode. To remove the access list, use the **no** form of this command.

filter {**value** *ACLname* | **none**}

no filter

Syntax Description

none	Indicates that there is no WebVPN type access list. Sets a null value, thereby disallowing an access list. Prevents inheriting an access list from another group policy.
value *ACLname*	Provides the name of the previously configured access list.

Defaults

WebVPN access lists do not apply until you use the **filter** command to specify them.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **no** option allows inheritance of a value from another group policy. To prevent inheriting filter values, use the **filter value none** command.

You configure ACLs to permit or deny various types of traffic for this user or group policy. You then use the **filter** command to apply those ACLs for WebVPN traffic.

WebVPN does not use ACLs defined in the **vpn-filter** command.

Examples

The following example shows how to set a filter that invokes an access list named *acl_in* for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# filter acl_in
```

Related Commands

Command	Description
access-list	Creates an access list, or uses a downloadable access list.
webvpn	Use in group-policy configuration mode or in username configuration mode. Lets you enter webvpn configuration mode to configure parameters that apply to group policies or usernames.

filter activex

To remove ActiveX objects in HTTP traffic passing through the ASA, use the **filter activex** command in global configuration mode. To remove the configuration, use the **no** form of this command.

filter activex *port* [**-***port*] | **except** *local_ip mask foreign_ip foreign_mask*

no filter activex *port* [**-***port*] | **except** *local_ip mask foreign_ip foreign_mask*

Syntax Description

except	Creates an exception to a previous filter condition.
foreign_ip	The IP address of the lowest security level interface to which access is sought. You can use 0.0.0.0 (or in shortened form, 0) to specify all hosts.
foreign_mask	Network mask of the *foreign_ip* argument. Always specify a specific mask value. You can use 0.0.0.0 (or in shortened form, 0) to specify all hosts.
local_ip	The IP address of the highest security level interface from which access is requested. You can set this address to 0.0.0.0 (or in shortened form, 0) to specify all hosts.
mask	Network mask of the *local_ip* argument. You can use 0.0.0.0 (or in shortened form, 0) to specify all hosts.
port	The TCP port to which filtering is applied. Typically, this is port 21, but other values are accepted. The http or url literal can be used for port 21. The range of values permitted is 0 to 65535.
-*port*	(Optional) Specifies a port range.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

ActiveX objects may pose security risks because they can contain code intended to attack hosts and servers on a protected network. You can disable ActiveX objects with the **filter activex** command.

ActiveX controls, formerly known as OLE or OCX controls, are components that you can insert in a web page or other application. These controls include custom forms, calendars, or any of the extensive third-party forms for gathering or displaying information. As a technology, ActiveX creates many potential problems for network clients including causing workstations to fail, introducing network security problems, or being used to attack servers.

The **filter activex** command blocks the HTML **object** commands by commenting them out within the HTML web page. ActiveX filtering of HTML files is performed by selectively replacing the <applet> and </applet> and <object classid> and </object> tags with comments. Filtering of nested tags is supported by converting top-level tags to comments.

Caution The <object> tag is also used for Java applets, image files, and multimedia objects, which will also be blocked by this command.

If the <object> or </object> HTML tags split across network packets or if the code in the tags is longer than the number of bytes in the MTU, the ASA cannot block the tag.

ActiveX blocking does not occur when users access an IP address referenced by the **alias** command or for WebVPN traffic.

Examples

The following example specifies that ActiveX objects are blocked on all outbound connections:

```
hostname(config)# filter activex 80 0 0 0 0
```

This command specifies that the ActiveX object blocking applies to web traffic on port 80 from any local host and for connections to any foreign host.

Related Commands\

Commands	Description
filter url	Directs traffic to a URL filtering server.
filter java	Removes Java applets from HTTP traffic passing through the ASA.
show running-config filter	Displays filtering configuration.
url-block	Manages the URL buffers used for web server responses while waiting for a filtering decision from the filtering server.
url-server	Identifies anN2H2 or Websense server for use with the **filter** command.

filter ftp

To identify the FTP traffic to be filtered by a Websense or N2H2 server, use the **filter ftp** command in global configuration mode. To remove the configuration, use the **no** form of this command.

filter ftp *port* [**-***port*] | **except** *local_ip mask foreign_ip foreign_mask* [**allow**] [**interact-block**]

no filter ftp *port* [**-***port*] | **except** *local_ip mask foreign_ip foreign_mask* [**allow**] [**interact-block**]

Syntax Description

allow	(Optional) When the server is unavailable, let outbound connections pass through the ASA without filtering. If you omit this option, and if the N2H2 or Websense server goes off line, the ASA stops outbound port 80 (Web) traffic until the N2H2 or Websense server is back on line.
except	Creates an exception to a previous filter condition.
foreign_ip	The IP address of the lowest security level interface to which access is requested. You can use 0.0.0.0 (or in shortened form, 0) to specify all hosts.
foreign_mask	Network mask of the *foreign_ip* argument. Always specify a specific mask value. You can use 0.0.0.0 (or in shortened form, 0) to specify all hosts.
interact-block	(Optional) Prevents users from connecting to the FTP server through an interactive FTP program.
local_ip	The IP address of the highest security level interface from which access is sought. You can set this address to 0.0.0.0 (or in shortened form, 0) to specify all hosts.
mask	Network mask of the *local_ip* argument. You can use 0.0.0.0 (or in shortened form, 0) to specify all hosts.
port	The TCP port to which filtering is applied. Typically, this is port 21, but other values are accepted. The ftp literal can be used for port 80.
-*port*	(Optional) Specifies a port range.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **filter ftp** command lets you identify the FTP traffic to be filtered by a Websense or N2H2 server.

After enabling this feature, when a user issues an FTP GET request to a server, the ASA sends the request to the FTP server and to the Websense or N2H2 server at the same time. If the Websense or N2H2 server permits the connection, the ASA allows the successful FTP return code to reach the user unchanged. For example, a successful return code is "250: CWD command successful."

If the Websense or N2H2 server denies the connection, the ASA alters the FTP return code to show that the connection was denied. For example, the ASA would change code 250 to "550 Requested file is prohibited by URL filtering policy." Websense only filters FTP GET commands and not PUT commands.

Use the **interactive-block** option to prevent interactive FTP sessions that do not provide the entire directory path. An interactive FTP client allows the user to change directories without typing the entire path. For example, the user might enter **cd ./files** instead of **cd /public/files**. You must identify and enable the URL filtering server before using these commands.

Examples

The following example shows how to enable FTP filtering:

```
hostname(config)# url-server (perimeter) host 10.0.1.1
hostname(config)# filter ftp 21 0 0 0 0
hostname(config)# filter ftp except 10.0.2.54 255.255.255.255 0 0
```

Related Commands

Commands	Description
filter https	Identifies the HTTPS traffic to be filtered by a Websense sor N2H2 erver.
filter java	Removes Java applets from HTTP traffic passing through the ASA.
filter url	Directs traffic to a URL filtering server.
show running-config filter	Displays filtering configuration.
url-block	Manages the URL buffers used for web server responses while waiting for a filtering decision from the filtering server.
url-server	Identifies an N2H2 or Websense server for use with the **filter** command.

filter https

To identify the HTTPS traffic to be filtered by a N2H2 or Websense server, use the **filter https** command in global configuration mode. To remove the configuration, use the **no** form of this command.

filter https *port* [**-***port*] | **except** *local_ip mask foreign_ip foreign_mask* [**allow**]

no filter https *port* [**-***port*] | **except** *local_ip mask foreign_ip foreign_mask* [**allow**]

Syntax Description

allow	(Optional) When the server is unavailable, let outbound connections pass through the ASA without filtering. If you omit this option, and if the N2H2 or Websense server goes offline, the ASA stops outbound port 443 traffic until the N2H2 or Websense server is back online.
except	(Optional) Creates an exception to a previous filter condition.
foreign_ip	The IP address of the lowest security level interface to which access is sought. You can use 0.0.0.0 (or in shortened form, 0) to specify all hosts.
foreign_mask	Network mask of the *foreign_ip* argument. Always specify a specific mask value. You can use 0.0.0.0 (or in shortened form, 0) to specify all hosts.
local_ip	The IP address of the highest security level interface from which access is sought. You can set this address to 0.0.0.0 (or in shortened form, 0) to specify all hosts.
mask	Network mask of the *local_ip* argument. You can use 0.0.0.0 (or in shortened form, 0) to specify all hosts.
port	The TCP port to which filtering is applied. Typically, this is port 443, but other values are accepted. The https literal can be used for port 443.
-*port*	(Optional) Specifies a port range.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The ASA supports filtering of HTTPS and FTP sites using an external Websense or N2H2 filtering server.

HTTPS filtering works by preventing the completion of SSL connection negotiation if the site is not allowed. The browser displays an error message such as "The Page or the content cannot be displayed."

Because HTTPS content is encrypted, the ASA sends the URL lookup without directory and filename information.

Examples

The following example filters all outbound HTTPS connections except those from the 10.0.2.54 host:

```
hostname(config)# url-server (perimeter) host 10.0.1.1
hostname(config)# filter https 443 0 0 0 0
hostname(config)# filter https except 10.0.2.54 255.255.255.255 0 0
```

Related Commands

Commands	Description
filter activex	Removes ActiveX objects from HTTP traffic passing through the ASA.
filter java	Removes Java applets from HTTP traffic passing through the ASA.
filter url	Directs traffic to a URL filtering server.
show running-config filter	Displays filtering configuration.
url-block	Manages the URL buffers used for web server responses while waiting for a filtering decision from the filtering server.
url-server	Identifies an N2H2 or Websense server for use with the **filter** command.

filter java

To remove Java applets from HTTP traffic passing through the ASA, use the **filter java** command in global configuration mode. To remove the configuration, use the **no** form of this command.

filter java {[*port*[**-***port*] | **except** } *local_ip local_mask foreign_ip foreign_mask*]

no filter java {[*port*[**-***port*] | **except** } *local_ip local_mask foreign_ip foreign_mask*]

Syntax Description

except	(Optional) Creates an exception to a previous filter condition.
foreign_ip	The IP address of the lowest security level interface to which access is requested. You can use 0.0.0.0 (or in shortened form, 0) to specify all hosts.
foreign_mask	Network mask of the *foreign_ip* argument. Always specify a specific mask value. You can use 0.0.0.0 (or in shortened form, 0) to specify all hosts.
local_ip	The IP address of the highest security level interface from which access is requested. You can set this address to 0.0.0.0 (or in shortened form, 0) to specify all hosts.
local_mask	Network mask of the *local_ip* argument. You can use 0.0.0.0 (or in shortened form, 0) to specify all hosts.
port	The TCP port to which filtering is applied. Typically, this is port 80, but other values are accepted. The http or url literal can be used for port 80.
*port***-***port*	(Optional) Specifies a port range.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Java applets may pose security risks because they can contain code intended to attack hosts and servers on a protected network. You can remove Java applets with the **filter java** command.

The **filter java** command filters out Java applets that return to the ASA from an outbound connection. The user still receives the HTML page, but the web page source for the applet is commented out so that the applet cannot execute. The **filter java** command does not filter WebVPN traffic.

If the <applet> or </applet> HTML tags split across network packets or if the code in the tags is longer than the number of bytes in the MTU, the ASA cannot block the tag. If Java applets are known to be in <object> tags, use the **filter activex** command to remove them.

Examples

The following example specifies that Java applets are blocked on all outbound connections:

```
hostname(config)# filter java 80 0 0 0 0
```

The following example specifies that the Java applet blocking applies to web traffic on port 80 from any local host and for connections to any foreign host.

The following example blocks the downloading of Java applets to a host on a protected network:

```
hostname(config)# filter java http 192.168.3.3 255.255.255.255 0 0
```

Related Commands

Commands	Description
filter activex	Removes ActiveX objects from HTTP traffic passing through the ASA.
filter url	Directs traffic to a URL filtering server.
show running-config filter	Displays filtering configuration.
url-server	Identifies an N2H2 or Websense server for use with the **filter** command.

filter url

To direct traffic to a URL filtering server, use the **filter url** command in global configuration mode. To remove the configuration, use the **no** form of this command.

filter url *port* [**-***port*] | **except** *local_ip local_mask foreign_ip foreign_mask* [**allow**] [**cgi-truncate**] [**longurl-truncate** | **longurl-deny**] [**proxy-block**]

no filter url *port* [**-***port*] | **except** *local_ip mask foreign_ip foreign_mask* [**allow**] [**cgi-truncate**] [**longurl-truncate** | **longurl-deny**] [**proxy-block**]

Syntax Description

allow	When the server is unavailable, let outbound connections pass through the ASA without filtering. If you omit this option, and if the N2H2 or Websense server goes off line, the ASA stops outbound port 80 (Web) traffic until the N2H2 or Websense server is back online.
cgi_truncate	When a URL has a parameter list starting with a question mark (?), such as a CGI script, truncate the URL sent to the filtering server by removing all characters after and including the question mark.
except	Creates an exception to a previous **filter** condition.
foreign_ip	The IP address of the lowest security level interface to which access is sought. You can use 0.0.0.0 (or in shortened form, 0) to specify all hosts.
foreign_mask	Network mask of the *foreign_ip* argument. Always specify a specific mask value. You can use 0.0.0.0 (or in shortened form, 0) to specify all hosts.
http	Specifies port 80. You can enter http or www instead of 80 to specify port 80.
local_ip	The IP address of the highest security level interface from which access is sought. You can set this address to 0.0.0.0 (or in shortened form, 0) to specify all hosts.
local_mask	Network mask of the *local_ip* argument. You can use 0.0.0.0 (or in shortened form, 0) to specify all hosts.
longurl-deny	Denies the URL request if the URL is over the URL buffer size limit or the URL buffer is not available.
longurl-truncate	Sends only the originating hostname or IP address to the N2H2 or Websense server if the URL is over the URL buffer limit.
-*port*	(Optional) The TCP port to which filtering is applied. Typically, this is port 80, but other values are accepted. The http or url literal can be used for port 80. Adding a second port after a hyphen optionally identifies a range of ports.
proxy-block	Prevents users from connecting to an HTTP proxy server.
url	Filter URLs from data moving through the ASA.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **filter url** command lets you prevent outbound users from accessing World Wide Web URLs that you designate using the N2H2 or Websense filtering application.

Note The **url-server** command must be configured before issuing the **filter url** command.

The **allow** option of the **filter url** command determines how the ASA behaves if the N2H2 or Websense server goes off line. If you use the **allow** option with the **filter url** command and the N2H2 or Websense server goes offline, port 80 traffic passes through the ASA without filtering. If used without the **allow** option and with the server offline, the ASA stops outbound port 80 (Web) traffic until the server is back online, or if another URL server is available, passes control to the next URL server.

Note With the **allow** option set, the ASA passes control to an alternate server if the N2H2 or Websense server goes offline.

The N2H2 or Websense server works with the ASA to deny users from access to websites based on the company security policy.

Using the Filtering Server

Websense protocol Version 4 enables group and username authentication between a host and an ASA. The ASA performs a username lookup, and then Websense server handles URL filtering and username logging.

The N2H2 server must be a Windows workstation (2000, NT, or XP), running an IFP Server, with a recommended minimum of 512 MB of RAM. Also, the long URL support for the N2H2 service is capped at 3 KB, less than the cap for Websense.

Websense protocol Version 4 contains the following enhancements:

- URL filtering allows the ASA to check outgoing URL requests with the policy defined on the Websense server.
- Username logging tracks username, group, and domain name on the Websense server.
- Username lookup enables the ASA to use the user authentication table to map the host's IP address to the username.

Information on Websense is available at the following website:

http://www.websense.com/

Configuration Procedure

Follow these steps to filter URLs:

1. Designate an N2H2 or Websense server with the appropriate vendor-specific form of the **url-server** command.
2. Enable filtering with the **filter** command.
3. If needed, improve throughput with the **url-cache** command. However, this command does not update Websense logs, which may affect Websense accounting reports. Accumulate Websense run logs before using the **url-cache** command.
4. Use the **show url-cache statistics** and the **show perfmon** commands to view run information.

Working with Long URLs

Filtering URLs up to 4 KB is supported for the Websense filtering server, and up to 3 KB for the N2H2 filtering server.

Use the **longurl-truncate** and **cgi-truncate** options to allow handling of URL requests longer than the maximum permitted size.

If a URL is longer than the maximum, and you do not enable the **longurl-truncate** or **longurl-deny** options, the ASA drops the packet.

The **longurl-truncate** option causes the ASA to send only the hostname or IP address portion of the URL for evaluation to the filtering server when the URL is longer than the maximum length permitted. Use the **longurl-deny** option to deny outbound URL traffic if the URL is longer than the maximum permitted.

Use the **cgi-truncate** option to truncate CGI URLs to include only the CGI script location and the script name without any parameters. Many long HTTP requests are CGI requests. If the parameters list is very long, waiting and sending the complete CGI request including the parameter list can use up memory resources and affect ASA performance.

Buffering HTTP Responses

By default, when a user issues a request to connect to a specific website, the ASA sends the request to the web server and to the filtering server at the same time. If the filtering server does not respond before the web content server, the response from the web server is dropped. This delays the web server response from the point of view of the web client.

By enabling the HTTP response buffer, replies from web content servers are buffered and the responses will be forwarded to the requesting user if the filtering server allows the connection. This prevents the delay that may otherwise occur.

To enable the HTTP response buffer, enter the following command:

```
hostname(config)# url-block block block-buffer-limit
```

Replace the *block-buffer-limit* argument with the maximum number of blocks that will be buffered. The permitted values are from 1 to 128, which specifies the number of 1550-byte blocks that can be buffered at one time.

Examples

The following example filters all outbound HTTP connections except those from the 10.0.2.54 host:

```
hostname(config)# url-server (perimeter) host 10.0.1.1
hostname(config)# filter url 80 0 0 0 0
hostname(config)# filter url except 10.0.2.54 255.255.255.255 0 0
```

The following example blocks all outbound HTTP connections destined to a proxy server that listens on port 8080:

```
hostname(config)# filter url 8080 0 0 0 0 proxy-block
```

Related Commands

Commands	Description
filter activex	Removes ActiveX objects from HTTP traffic passing through the ASA.
filter java	Removes Java applets from HTTP traffic passing through the ASA.
url-block	Manages the URL buffers used for web server responses while waiting for a filtering decision from the filtering server.
url-cache	Enables URL caching while pending responses from an N2H2 or Websense server and sets the size of the cache.
url-server	Identifies an N2H2 or Websense server for use with the **filter** command.

fips enable

To enable policy checking to enforce FIPS compliance on the system or module, use the **fips enable** command in global configuration mode. To disable policy checking, use the **no** form of this command.

fips enable

no fips enable

Syntax Description

enable	Enables or disables policy checking to enforce FIPS compliance.

Defaults

This command has no default settings.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	—	—	•	•	—

Command History

Release	Modification
7.0(4)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

To run in a FIPS-compliant mode of operation, you must apply both the **fips enable** command and the correct configuration specified in the security policy. The internal API allows the device to migrate toward enforcing correct configuration at run time.

When the FIPS-compliant mode is present in the startup configuration, FIPS POST will run and print the following console message:

```
Copyright (c) 1996-2005 by Cisco Systems, Inc.
Restricted Rights Legend

Use, duplication, or disclosure by the Government is subject to restrictions as set forth
in subparagraph (c) of the Commercial Computer Software - Restricted Rights clause at FAR
sec. 52.227-19 and subparagraph (c) (1) (ii) of the Rights in Technical Data and Computer
Software clause at DFARS sec. 252.227-7013.

               Cisco Systems, Inc.
               170 West Tasman Drive
               San Jose, California 95134-1706

....
Cryptochecksum (unchanged): 6c6d2f77 ef13898e 682c9f94 9c2d5ba9

INFO: FIPS Power-On Self-Test in process.  Estimated completion in 90 seconds.
```

```
.....................................................
INFO: FIPS Power-On Self-Test complete.
Type help or '?' for a list of available commands.
sw8-5520>
```

Examples

The following shows policy checking to enforce FIPS compliance on the system:

```
hostname(config)# fips enable
```

Related Commands

Command	Description
clear configure fips	Clears the system or module FIPS configuration information stored in NVRAM.
crashinfo console disable	Disables the reading, writing and configuration of crash write info to flash.
fips self-test poweron	Executes power-on self-tests.
show crashinfo console	Reads, writes, and configures crash write to flash.
show running-config fips	Displays the FIPS configuration that is running on the ASA.

fips self-test poweron

To execute power-on self-tests, use the **fips self-test powereon** command in privileged EXEC mode.

fips self-test poweron

Syntax Description

poweron	Executes power-on self-tests.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(4)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

Entering this command causes the device to run all self-tests required for FIPS 140-2 compliance. Tests include the cryptographic algorithm test, software integrity test, and critical functions test.

Examples

The following example shows the system executing power-on of self-tests:

```
sw8-5520(config)# fips self-test poweron
```

Related Commands

Command	Description
clear configure fips	Clears the system or module FIPS configuration information stored in NVRAM.
crashinfo console disable	Disables the reading, writing, and configuration of crash write info to Flash.
fips enable	Enables or disablea policy checking to enforce FIPS compliance on the system or module.
show crashinfo console	Reads, writes, and configures crash write to flash.
show running-config fips	Displays the FIPS configuration that is running on the ASA.

firewall transparent

To set the firewall mode to transparent mode, use the **firewall transparent** command in global configuration mode. To restore routed mode, use the **no** form of this command.

firewall transparent

no firewall transparent

Syntax Description

This command has no arguments or keywords.

Defaults

By default, the ASA is in routed mode.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.5(1)/9.0(1)	You can set this per context in multiple context mode.

Usage Guidelines

A transparent firewall is a Layer 2 firewall that acts like a "bump in the wire," or a "stealth firewall," and is not seen as a router hop to connected devices.

You can set this command per context in multiple context mode.

When you change modes, the ASA clears the configuration because many commands are not supported for both modes. If you already have a populated configuration, be sure to back up your configuration before changing the mode; you can use this backup for reference when creating your new configuration.

If you download a text configuration to the ASA that changes the mode with the **firewall transparent** command, be sure to put the command at the top of the configuration; the ASA changes the mode as soon as it reads the command and then continues reading the configuration you downloaded. If the command is later in the configuration, the ASA clears all the preceding lines in the configuration.

Examples

The following example changes the firewall mode to transparent:

```
hostname(config)# firewall transparent
```

Related Commands

Command	Description
arp-inspection	Enables ARP inspection, which compares ARP packets to static ARP entries.
mac-address-table static	Adds static MAC address entries to the MAC address table.
mac-learn	Disables MAC address learning.
show firewall	Shows the firewall mode.
show mac-address-table	Shows the MAC address table, including dynamic and static entries.

firewall vlan-group (IOS)

To assign VLANs to a firewall group, enter the **firewall vlan-group** command in global configuration mode. To remove the VLANs, use the **no** form of this command.

firewall vlan-group *firewall_group vlan_range*

no firewall vlan-group *firewall_group vlan_range*

Syntax Description

firewall_group	Specifies the group ID as an integer.
vlan_range	Specifies the VLANs assigned to the group. The *vlan_range* can be one or more VLANs (2 to 1000 and from 1025 to 4094) identified in one of the following ways: • A single number (*n*) • A range (*n-x*) Separate numbers or ranges by commas. For example, enter the following numbers: `5,7-10,13,45-100` **Note** Routed ports and WAN ports consume internal VLANs, so it is possible that VLANs in the 1020-1100 range might already be in use.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

In Cisco IOS software, create up to 16 firewall VLAN groups using the **firewall vlan-group** command, and then assign the groups to the ASA (using the **firewall module** command). For example, you can assign all the VLANs to one group, or you can create an inside group and an outside group, or you can create a group for each customer. Each group can contain unlimited VLANs.

You cannot assign the same VLAN to multiple firewall groups; however, you can assign multiple firewall groups to an ASA and you can assign a single firewall group to multiple ASAs. VLANs that you want to assign to multiple ASAs, for example, can reside in a separate group from VLANs that are unique to each ASA.

Examples

The following example shows how you can create three firewall VLAN groups: one for each ASA, and one that includes VLANs assigned to both ASAs.

```
Router(config)# firewall vlan-group 50 55-57
Router(config)# firewall vlan-group 51 70-85
Router(config)# firewall vlan-group 52 100
Router(config)# firewall module 5 vlan-group 50,52
Router(config)# firewall module 8 vlan-group 51,52
```

The following is sample output from the **show firewall vlan-group** command:

```
Router# show firewall vlan-group
Group vlans
----- ------
   50 55-57
   51 70-85
   52 100
```

The following is sample output from the **show firewall module** command, which shows all VLAN groups:

```
Router# show firewall module
Module Vlan-groups
  5    50,52
  8    51,52
```

Related Commands

Command	Description
firewall module	Assigns a VLAN group to an ASA.
show firewall vlan-group	Shows the VLAN groups and the VLANs assigned to them.
show module	Shows all installed modules.

flow-export active refresh-interval

To specify the time interval between flow-update events, use the **flow-export active refresh-interval** command in global configuration mode.

flow-export active refresh-interval *value*

Syntax Description

value	Specifies the time interval between flow-update events in minutes. Valid values are from 1-60 minutes.

Defaults

The default value is 1 minute.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
9.1(2)	This command was introduced.

Usage Guidelines

If you have already configured the **flow-export delay flow-create** command, and you then configure the **flow-export active refresh-interval** command with an interval value that is not at least 5 seconds more than the delay value, the following warning message appears at the console:

```
WARNING: The current delay flow-create value configuration may cause flow-update events to
appear before flow-creation events.
```

If you have already configured the **flow-export active refresh-interval** command, and you then configure the **flow-export delay flow-create** command with a delay value that is not at least 5 seconds less than the interval value, the following warning message appears at the console:

```
WARNING: The current delay flow-create value configuration may cause flow-update events to
appear before flow-creation events.
```

Examples

The following example shows how to configure a time interval of 30 minutes:

```
hostname(config)# flow-export active refresh-interval 30
```

Related Commands

Commands	Description
clear flow-export counters	Resets all runtime counters in NetFlow to zero.
flow-export destination	Specifies the IP address or hostname of the NetFlow collector, and the UDP port on which the NetFlow collector is listening.
flow-export template timeout-rate	Controls the interval at which the template information is sent to the NetFlow collector.
logging flow-export-syslogs enable	Enables syslog messages after you have entered the **logging flow-export-syslogs disable** command, and the syslog messages that are associated with NetFlow data.
show flow-export counters	Displays a set of runtime counters for NetFlow.

flow-export delay flow-create

To delay export of the flow-create event, use the **flow-export delay flow-create** command in global configuration mode. To export the flow-create event without a delay, use the **no** form of this command.

flow-export delay flow-create *seconds*

no flow-export delay flow-create *seconds*

Syntax Description

seconds	Specifies the delay in seconds for exporting the flow-create event. Valid values are 1-180 seconds.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.1(2)	This command was introduced.

Usage Guidelines

If the **flow-export delay flow-create** command is not configured, the flow-create event is exported without a delay.

If the flow is torn down before the configured delay, the flow-create event is not sent; an extended flow teardown event is sent instead.

Examples

The following example shows how to delay the export of a flow-create event by ten seconds:

```
hostname(config)# flow-export delay flow-create 10
```

Related Commands

Commands	Description
clear flow-export counters	Resets all runtime counters in NetFlow to zero.
flow-export destination	Specifies the IP address or hostname of the NetFlow collector, and the UDP port on which the NetFlow collector is listening.
flow-export template timeout-rate	Controls the interval at which the template information is sent to the NetFlow collector.
logging flow-export-syslogs enable	Enables syslog messages after you have entered the **logging flow-export-syslogs disable** command, and the syslog messages that are associated with NetFlow data.
show flow-export counters	Displays a set of runtime counters for NetFlow.

flow-export destination

To configure a collector to which NetFlow packets are sent, use the **flow-export destination** command in global configuration mode. To remove a collector of NetFlow packets, use the **no** form of this command.

flow-export destination *interface-name ipv4-address | hostname udp-port*

no flow-export destination *interface-name ipv4-address | hostname udp-port*

Syntax Description

hostname	Specifies the hostname of the NetFlow collector.
interface-name	Specifies the name of the interface through which the destination can be reached.
ipv4-address	Specifies the IP address of the NetFlow collector. Only IPv4 is supported.
udp-port	Specifies the UDP port on which the NetFlow collector is listening. Valid values are 1-65535.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.1(1)	This command was introduced.
8.1(2)	The maximum number of flow export destinations was increased to five.

Usage Guidelines

You can use the **flow-export destination** command to configure the ASA to export NetFlow data to a NetFlow collector.

Note You can enter a maximum of five export destinations (collectors) per security context. When you enter a new destination, the template records are sent to the newly added collector. If you try to add more than five destinations, the following error message appears:

"ERROR: A maximum of 5 flow-export destinations can be configured."

If the ASA is configured to export NetFlow data, to improve performance, we recommend that you disable redundant syslog messages (those also captured by NetFlow) by entering the **logging flow-export-syslogs disable** command.

Examples

The following example shows how to configure a collector for NetFlow data:

```
hostname(config)# flow-export destination inside 209.165.200.224 2055
```

Related Commands

Commands	Description
clear flow-export counters	Resets all runtime counters in NetFlow to zero.
flow-export delay flow-create	Delays the export of the flow-create event by a specified amount of time.
flow-export template timeout-rate	Controls the interval at which the template information is sent to the NetFlow collector.
logging flow-export-syslogs enable	Enables syslog messages after you have entered the **logging flow-export-syslogs disable** command, and the syslog messages that are associated with NetFlow data.
show flow-export counters	Displays a set of runtime counters for NetFlow.

flow-export event-type destination

To configure the address of NetFlow collectors and filters to determine which NetFlow records should be sent to each collector, use the **flow-export event-type destination** command in policy-map class configuration mode. To remove the address of NetFlow collectors and filters, use the **no** form of this command.

flow-export event-type {**all** | **flow-create** | **flow-denied** | **flow-update** | **flow-teardown**} **destination**

no flow-export event-type {**all** | **flow-create** | **flow-denied** | **flow-update** | **flow-teardown**} **destination**

Syntax Description

all	Specifies all four event types.
flow-create	Specifies flow-create events.
flow-denied	Specifies flow-denied events.
flow-teardown	Specifies flow-teardown events.
flow-update	Specifies flow-update events.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Policy-map class configuration	•	•	•	•	—

Command History

Release	Modification
8.1(2)	This command was introduced.

Usage Guidelines

NetFlow events are configured through Modular Policy Framework. If Modular Policy Framework is not configured for NetFlow, no events are logged. Traffic is matched based on the order in which classes are configured. After a match is detected, no other classes are checked. For NetFlow events, the configuration requirements are as follows:

- A flow-export destination (that is, a NetFlow collector) is uniquely identified by its IP address.
- Supported event types are flow-create, flow-teardown, flow-denied, flow-update, and all, which include the four previously listed event types.
- Flow-export actions are not supported in interface policies.

- Flow-export actions are only supported in the **class-default** command and in classes with the **match any** or **match access-list** command.
- If no NetFlow collector has been defined, no configuration actions occur.
- NetFlow Secure Event Logging filtering is order-independent.

Note To create a valid NetFlow configuration, you must have both the flow-export destination configuration and the flow-export event-type configuration. The flow-export destination configuration alone does nothing. You must also configure a class map for the flow-export event-type configuration. This can either be the default class map or one that you create.

Examples

The following example exports all NetFlow events between hosts 10.1.1.1 and 20.1.1.1 to the destination 15.1.1.1.

```
hostname(config)# access-list flow_export_acl permit ip host 10.1.1.1 host 20.1.1.1
hostname(config)# class-map flow_export_class
hostname(config-cmap)# match access-list flow_export_acl
hostname(config)# policy-map global_policy
hostname(config-pmap)# class flow_export_class
hostname(config-pmap-c)# flow-export event-type all destination 15.1.1.1
```

Related Commands

Commands	Description
clear flow-export counters	Resets all runtime counters in NetFlow to zero.
flow-export delay flow-create	Delays the export of the flow-create event by a specified amount of time.
flow-export template timeout-rate	Controls the interval at which the template information is sent to the NetFlow collector.
logging flow-export-syslogs enable	Enables syslog messages after you have entered the **logging flow-export-syslogs disable** command, and the syslog messages that are associated with NetFlow data.
show flow-export counters	Displays a set of runtime counters for NetFlow.

flow-export template timeout-rate

To control the interval at which the template information is sent to NetFlow collectors, use the **flow-export template timeout-rate** command in global configuration mode. To reset the template timeout to the default value, use the **no** form of this command.

flow-export template timeout-rate *minutes*

no flow-export template timeout-rate *minutes*

Syntax Description

minutes	Specifies the interval in minutes. Valid values are 1-3600 minutes.
template	Enables the **timeout-rate** keyword for configuring export templates.
timeout-rate	Specifies the amount of time elapsed (interval) after the template is initially sent before it is resent.

Defaults

The default value for the interval is 30 minutes.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.1(1)	This command was introduced.

Usage Guidelines

You should configure the timeout rate based on the collector being used and at what rate the collectors expect the templates to be refreshed.

If the security appliance is configured to export NetFlow data, to improve performance, we recommend that you disable redundant syslog messages (those also captured by NetFlow) by entering the **logging flow-export-syslogs disable** command.

Examples

The following example shows how to configure NetFlow to send template records to all collectors every 60 minutes:

```
hostname(config)# flow-export template timeout-rate 60
```

Related Commands

Commands	Description
clear flow-export counters	Resets all the runtime counters associated with NetFlow data.
flow-export destination	Specifies the IP address or hostname of the NetFlow collector, and the UDP port on which the NetFlow collector is listening.
logging flow-export-syslogs enable	Enables syslog messages after you have entered the **logging flow-export-syslogs disable** command, and the syslog messages that are associated with NetFlow data.
show flow-export counters	Displays a set of runtime counters for NetFlow.

flowcontrol

To enable pause (XOFF) frames for flow control, use the **flowcontrol** command in interface configuration mode. To disable pause frames, use the **no** form of this command.

flowcontrol send on [*low_water high_water pause_time*] [**noconfirm**]

no flowcontrol send on [*low_water high_water pause_time*] [**noconfirm**]

Syntax Description

high_water	Sets the high-water mark, between 0 and 511 KB for 10 GigabitEthernet, and between 0 and 47 KB for 1 GigabitEthernet. When the buffer usage exceeds the high watermark, the NIC sends a pause frame.
low_water	Sets the low-water mark, between 0 and 511 KB for 10 GigabitEthernet, and between 0 and 47 KB for 1 GigabitEthernet. After the network interface controller (NIC) sends a pause frame, when the buffer usage is reduced below the low watermark, the NIC sends an XON frame. The link partner can resume traffic after receiving an XON frame.
noconfirm	Applies the command without confirmation. Because this command resets the interface, without this option, you are asked to confirm the configuration change.
pause_time	Sets the pause refresh threshold value, between 0 and 65535 slots. Each slot is the amount of time to transmit 64 bytes, so the time per unit depends on your link speed. The link partner can resume traffic after receiving an XON, or after the XOFF expires, as controlled by this timer value in the pause frame. If the buffer usage is consistently above the high watermark, pause frames are sent repeatedly, controlled by the pause refresh threshold value. The default is 26624.

Command Default

Pause frames are disabled by default.

For 10 GigabitEthernet, see the following default settings:

- The default high watermark is 128 KB.
- The default low watermark is 64 KB.
- The default pause refresh threshold value is 26624 slots.

For 1 GigabitEthernet, see the following default settings:

- The default high watermark is 24 KB.
- The default low watermark is 16 KB.
- The default pause refresh threshold value is 26624 slots.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	—	•

Command History

Release	Modification
8.2(2)	This command was introduced for 10-GigabitEthernet interfaces on the ASA 5580.
8.2(3)	Added support for the ASA 5585-X.
8.2(5)/8.4(2)	Added support for 1-GigabitEthernet interfaces on all models.

Usage Guidelines

This command is supported on 1-GigabitEthernet and 10-Gigabit Ethernet interfaces. This command does not support management interfaces.

Enter this command for a physical interface.

If you have a traffic burst, dropped packets can occur if the burst exceeds the buffering capacity of the FIFO buffer on the NIC and the receive ring buffers. Enabling pause frames for flow control can alleviate this issue.

When you enable this command, pause (XOFF) and XON frames are generated automatically by the NIC hardware based on the FIFO buffer usage:

1. The NIC sends a pause frame when the buffer usage exceeds the high watermark.
2. After a pause is sent, the NIC sends an XON frame when the buffer usage is reduced below the low watermark.
3. The link partner can resume traffic after receiving an XON, or after the XOFF expires, as controlled by the timer value in the pause frame.
4. If the buffer usage is consistently above the high watermark, the NIC sends pause frames repeatedly, controlled by the pause refresh threshold value.

When you use this command, the following warning message appears:

```
Changing flow-control parameters will reset the interface. Packets may be lost during the
reset.
Proceed with flow-control changes?
```

To change the parameters without being prompted, use the **noconfirm** keyword.

Note Only flow control frames defined in 802.3x are supported. Priority-based flow control is not supported.

Examples

The following example enables pause frames using the default settings:

```
hostname(config)# interface tengigabitethernet 1/0
hostname(config-if)# flowcontrol send on
```

```
Changing flow-control parameters will reset the interface. Packets may be lost during the
reset.
Proceed with flow-control changes?
hostname(config-if)# y
```

Related Commands

Command	Description
interface	Enters interface configuration mode.

format

To erase all files and format the file system, use the **format** command in privileged EXEC mode.

format {**disk0: | disk1: | flash:**}

Syntax Description

disk0*:*	Specifies the internal flash memory, followed by a colon.
disk1:	Specifies the external flash memory card, followed by a colon.
flash:	Specifies the internal flash memory, followed by a colon. In the ASA 5500 series, the **flash** keyword is aliased to **disk0**.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **format** command erases all data on the specified file system and then rewrites the FAT information to the device.

Caution Use the **format** command with extreme caution, only when necessary, to clean up corrupted flash memory.

To delete all visible files (excluding hidden system files), enter the **delete /recursive** command, instead of the **format** command.

Note On the Cisco ASA 5500 series, the **erase** command destroys all user data on the disk with the 0xFF pattern. In contrast, the **format** command only resets the file system control structures. If you used a raw disk read tool, you could still see the information.

To repair a corrupt file system, try entering the **fsck** command before entering the **format** command.

Examples

This example shows how to format the flash memory:

```
hostname# format flash:
```

Related Commands

Command	Description
delete	Removes all user-visible files.
erase	Deletes all files and formats the flash memory.
fsck	Repairs a corrupt file system.

forward interface

For models with a built-in switch, such as the ASA 5505, use the **forward interface** command in interface configuration mode to restore connectivity for one VLAN from initiating contact to one other VLAN. To restrict one VLAN from initiating contact to one other VLAN, use the **no** form of this command.

forward interface vlan *number*

no forward interface vlan *number*

Syntax Description

vlan *number*	Specifies the VLAN ID to which this VLAN interface cannot initiate traffic.

Defaults

By default, all interfaces can initiate traffic to all other interfaces.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

You might need to restrict one VLAN depending on how many VLANs your license supports.

In routed mode, you can configure up to three active VLANs with the ASA 5505 Base license, and up to five active VLANs with the Security Plus license. An active VLAN is a VLAN with a **nameif** command configured. You can configure up to five inactive VLANs on the ASA 5505 for either license, but if you make them active, be sure to follow the guidelines for your license.

With the Base license, the third VLAN must be configured with the **no forward interface** command to restrict this VLAN from initiating contact to one other VLAN.

For example, you have one VLAN assigned to the outside for Internet access, one VLAN assigned to an inside work network, and a third VLAN assigned to your home network. The home network does not need to access the work network, so you can use the **no forward interface** command on the home VLAN; the work network can access the home network, but the home network cannot access the work network.

If you already have two VLAN interfaces configured with a **nameif** command, be sure to enter the **no forward interface** command before the **nameif** command on the third interface; the ASA does not allow three fully functioning VLAN interfaces with the Base license on the ASA 5505.

Examples

The following example configures three VLAN interfaces. The third home interface cannot forward traffic to the work interface.

```
hostname(config)# interface vlan 100
hostname(config-if)# nameif outside
hostname(config-if)# security-level 0
hostname(config-if)# ip address dhcp
hostname(config-if)# no shutdown

hostname(config-if)# interface vlan 200
hostname(config-if)# nameif work
hostname(config-if)# security-level 100
hostname(config-if)# ip address 10.1.1.1 255.255.255.0
hostname(config-if)# no shutdown

hostname(config-if)# interface vlan 300
hostname(config-if)# no forward interface vlan 200
hostname(config-if)# nameif home
hostname(config-if)# security-level 50
hostname(config-if)# ip address 10.2.1.1 255.255.255.0
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/0
hostname(config-if)# switchport access vlan 100
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/1
hostname(config-if)# switchport access vlan 200
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/2
hostname(config-if)# switchport access vlan 200
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/3
hostname(config-if)# switchport access vlan 200
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/4
hostname(config-if)# switchport access vlan 300
hostname(config-if)# no shutdown

...
```

Related Commands

Command	Description
backup interface	Assigns an interface to be a backup link to an ISP, for example.
clear interface	Clears counters for the **show interface** command.
interface vlan	Creates a VLAN interface and enters interface configuration mode.
show interface	Displays the runtime status and statistics of interfaces.
switchport access vlan	Assigns a switch port to a VLAN.

fqdn (crypto ca trustpoint)

To include the indicated FQDN in the Subject Alternative Name extension of the certificate during enrollment, use the **fqdn** command in crypto ca trustpoint configuration mode. To restore the default setting of the FQDN, use the **no** form of the command.

fqdn [*fqdn* | **none**]

no fqdn

Syntax Description

fqdn	Specifies the FQDN. The maximum length is 64 characters.
none	Specifies no fully qualified domain name.

Defaults

The default setting does not include the FQDN.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Crypto ca-trustpoint configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

If you are configuring the ASA to support authentication of a Nokia VPN Client using certificates, use the **none** keyword. See the **crypto isakmp identity** or **isakmp identity** command for more information about supporting certificate authentication of the Nokia VPN Client.

Examples

The following example enters crypto ca-trustpoint configuration mode for the trustpoint central, and includes the FQDN engineering in the enrollment request for the trustpoint central:

```
hostname(config)# crypto ca trustpoint central
hostname(config-ca-trustpoint)# fqdn engineering
hostname(config-ca-trustpoint)#
```

Related Commands

Command	Description
crypto ca trustpoint	Enters crypto ca-trustpoint configuration mode.
default enrollment	Returns enrollment parameters to their defaults.
enrollment retry count	Specifies the number of retries to attempt to send an enrollment request.

Command	Description
enrollment retry period	Specifies the number of minutes to wait before trying to send an enrollment request.
enrollment terminal	Specifies cut-and-paste enrollment with this trustpoint.

fqdn (network object)

To configure a FQDN for a network object, use the **fqdn** command in object configuration mode. To remove the object from the configuration, use the **no** form of this command.

fqdn [**v4** | **v6**] *fqdn*

no fqdn [**v4** | **v6**] *fqdn*

Syntax Description

fqdn	Specifies the FQDN, including the host and domain. The FQDN must begin and end with a digit or letter. Only letters, digits, and hyphens are allowed as internal characters. Labels are separated by a dot (for example, www.cisco.com).
v4	(Optional) Specifies an IPv4 domain name.
v6	(Optional)Specifies an IPv6 domain name.

Defaults

By default, the domain name is an IPv4 domain.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Object network configuration	•	•	•	•	—

Command History

Release	Modification
8.4(2)	This command was introduced.

Usage Guidelines

If you configure an existing network object with a different value, the new configuration will replace the existing configuration.

Examples

The following example shows how to create a network object:

```
hostname (config)# object network FQDN_1
hostname (config-network-object)# fqdn example.cisco.com
```

Related Commands

Command	Description
clear configure object	Clears all objects created.
description	Adds a description to the network object.

Command	Description
fqdn	Specifies a fully qualified domain name network object.
host	Specifies a host network object.
nat	Enables NAT for the network object.
object network	Creates a network object.
object-group network	Creates a network object group.
range	Specifies a range of addresses for the network object.
show running-config object network	Shows the network object configuration.
subnet	Specifies a subnet network object.

fragment

To provide additional management of packet fragmentation and improve compatibility with NFS, use the **fragment** command in global configuration mode. To return to the default values, use the **no** form of this command.

fragment reassembly {**full** | **virtual**} {**size** | **chain** | **timeout** *limit*} [*interface*]

no fragment reassembly {**full** | **virtual**} {**size** | **chain** | **timeout** *limit*} [*interface*]

Syntax Description

chain *limit*	Specifies the maximum number of fragments into which a full IP packet can be fragmented.
interface	(Optional) Specifies the ASA interface. If an interface is not specified, the command applies to all interfaces.
reassembly full | **virtual**	Specifies the full or virtual reassembly for IP fragments that are routed through the ASA. IP fragments that terminate at the ASA are always fully reassembled.
size *limit*	Sets the maximum number of fragments that can be in the IP reassembly database waiting for reassembly. **Note** The ASA does not accept any fragments that are not part of an existing fabric chain after the queue size reaches 2/3 full. The remaining 1/3 of the queue is used to accept fragments where the source/destination IP addresses and IP identification number are the same as an incomplete fragment chain that is already partially queued. This limit is a DoS protection mechanism to help legitimate fragment chains be reassembled when there is a fragment flooding attack.
timeout *limit*	Specifies the maximum number of seconds to wait for an entire fragmented packet to arrive. The timer starts after the first fragment of a packet arrives. If all fragments of the packet do not arrive by the number of seconds specified, all fragments of the packet that were already received will be discarded.

Defaults

The defaults are as follows:

- **chain** is 24 packets.
- *interface* is all interfaces.
- **size** is 200.
- **timeout** is 5 seconds.
- Virtual reassembly is enabled.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was modified so that you now must choose one of the following keywords: **chain**, **size**, or **timeout**. You can no longer enter the **fragment** command without entering one of these keywords, as was supported in prior releases of the software.
8.0(4)	The **reassembly full** | **virtual** option was added.

Usage Guidelines

By default, the ASA accepts up to 24 fragments to reconstruct a full IP packet. Based on your network security policy, you should consider configuring the ASA to prevent fragmented packets from traversing the ASA by entering the **fragment chain 1** *interface* command on each interface. Setting the limit to 1 means that all packets must be whole; that is, unfragmented.

If a large percentage of the network traffic through the ASA is NFS, additional tuning might be necessary to avoid database overflow.

In an environment where the MTU size is small between the NFS server and client, such as a WAN interface, the **chain** keyword might require additional tuning. In this case, we recommend using NFS over TCP to improve efficiency.

Setting the **size** *limit* to a large value can make the ASA more vulnerable to a DoS attack by fragment flooding. Do not set the **size** *limit* equal to or greater than the total number of blocks in the 1550 or 16384 pool.

The default values will limit DoS attacks caused by fragment flooding.

The following processes are performed regardless of the **reassembly** option setting:

- IP fragments are collected until a fragment set is formed or until a timeout interval has elapsed (see the **timeout** option).
- If a fragment set is formed, integrity checks are performed on the set. These checks include no overlapping, no tail overflow, and no chain overflow (see the **chain** option).

If the **fragment reassembly virtual** command is configured, the fragment set is forwarded to the transport layer for further processing.

If the **fragment reassembly full** command is configured, the fragment set is first coalesced into a single IP packet. The single IP packet is then forwarded to the transport layer for further processing.

Examples

The following example shows how to prevent fragmented packets on the outside and inside interfaces:

```
hostname(config)# fragment chain 1 outside
hostname(config)# fragment chain 1 inside
```

Continue entering the **fragment chain 1** *interface* command for each additional interface on which you want to prevent fragmented packets.

The following example shows how to configure the fragment database on the outside interface to a maximum size of 2000, a maximum chain length of 45, and a wait time of 10 seconds:

```
hostname(config)# fragment size 2000 outside
hostname(config)# fragment chain 45 outside
hostname(config)# fragment timeout 10 outside
```

The following example displays output from the **show fragment** command that includes the **reassembly virtual** option:

```
hostname(config)# show fragment
Interface: outside
    Size: 200, Chain: 24, Timeout: 5, Reassembly: virtual
    Queue: 0, Assembled: 0, Fail: 0, Overflow: 0
Interface: inside
    Size: 200, Chain: 24, Timeout: 5, Reassembly: virtual
    Queue: 0, Assembled: 0, Fail: 0, Overflow: 0
```

Related Commands

Command	Description
clear configure fragment	Resets all the IP fragment reassembly configurations to defaults.
clear fragment	Clears the operational data of the IP fragment reassembly module.
show fragment	Displays the operational data of the IP fragment reassembly module.
show running-config fragment	Displays the IP fragment reassembly configuration.

frequency

To set the rate at which the selected SLA operation repeats, use the **frequency** command in SLA monitor protocol configuration mode. To restore the default value, use the **no** form of this command.

frequency *seconds*

no frequency

Syntax Description

seconds	The number of seconds between SLA probes. Valid values are from 1 to 604800 seconds. This value cannot be less than the **timeout** value.

Defaults

The default frequency is 60 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
SLA monitor protocol configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

An SLA operation repeats at a given frequency for the lifetime of the operation. For example:

- An **ipIcmpEcho** operation with a frequency of 60 seconds repeats by sending the echo request packets once every 60 seconds for the lifetime of the operation.
- The default number of packets in an echo operation is 1. This packet is sent when the operation is started and is then sent again 60 seconds later.

If an individual SLA operation takes longer to execute than the specified frequency value, a statistics counter called “busy” is increased rather than immediately repeating the operation.

The value specified for the **frequency** command cannot be less than the value specified for the **timeout** command.

Examples

The following example configures an SLA operation with an ID of 123 and creates a tracking entry with the ID of 1 to track the reachability of the SLA. The frequency of the SLA operation is set to 3 seconds, and the timeout value is set to 1000 milliseconds.

```
hostname(config)# sla monitor 123
hostname(config-sla-monitor)# type echo protocol ipIcmpEcho 10.1.1.1 interface outside
```

```
hostname(config-sla-monitor-echo)# timeout 1000
hostname(config-sla-monitor-echo)# frequency 3
hostname(config)# sla monitor schedule 123 life forever start-time now
hostname(config)# track 1 rtr 123 reachability
```

Related Commands

Command	Description
sla monitor	Defines an SLA monitoring operation.
timeout	Defines the amount of time that the SLA operation waits for a response.

fsck

To perform a file system check and to repair corruptions, use the **fsck** command in privileged EXEC mode.

fsck [**/noconfirm**] {**disk0: | disk1: | flash:**}

Syntax Description

/noconfirm	(Optional) Does not prompt for confirmation to repair.
disk0:	Specifies the internal flash memory, followed by a colon.
disk1:	Specifies the external flash memory card, followed by a colon.
flash:	Specifies the internal flash memory, followed by a colon. The **flash** keyword is aliased to **disk0:**.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **fsck** command checks and tries to repair corrupt file systems. Use this command before trying more permanent procedures.

If the FSCK utility fixes an instance of disk corruption (due to a power failure or abnormal shutdown, for example), it creates recovery files named FSCK*xxx*.REC. These files can contain a fraction of a file or a whole file that was recovered while FSCK was running. In rare circumstances, you might need to inspect these files to recover data; generally, these files are not needed, and can be safely deleted.

Note The FSCK utility runs automatically at startup, so you may see these recovery files even if you did not manually enter the **fsck** command.

Examples

The following example shows how to check the file system of the flash memory:

```
hostname# fsck disk0:
```

Related Commands

Command	Description
delete	Removes all user-visible files.
erase	Deletes all files and formats the flash memory.
format	Erases all files on a file system, including hidden system files, and reinstalls the file system.

ftp mode passive

To set the FTP mode to passive, use the **ftp mode passive** command in global configuration mode. To reset the FTP client to active mode, use the **no** form of this command.

ftp mode passive

no ftp mode passive

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **ftp mode passive** command sets the FTP mode to passive.The ASA can use FTP to upload or download image files or configuration files to or from an FTP server. The **ftp mode passive** command controls how the FTP client on the ASA interacts with the FTP server.

In passive FTP, the client initiates both the control connection and the data connection. Passive mode refers to the server state, in that the server is passively accepting both the control connection and the data connection, which are initiated by the client.

In passive mode, both destination and source ports are ephemeral ports (greater than 1023). The mode is set by the client, as the client issues the **passive** command to initiate the setup of the passive data connection. The server, which is the recipient of the data connection in passive mode, responds with the port number to which it is listening for the specific connection.

Examples

The following example sets the FTP mode to passive:

```
hostname(config)# ftp mode passive
```

Related Commands

copy	Uploads or downloads image files or configuration files to or from an FTP server.
debug ftp client	Displays detailed information about FTP client activity.
show running-config ftp mode	Displays FTP client configuration.

functions

You cannot use the **functions** command for Release 8.0(2). It is deprecated and remains in this command reference only for reasons of backward compatibility. Use the **import** and **export** commands to create URL lists for websites, file access, and plug-ins, customizatioin, and language translations.

To configure automatic downloading of the port forwarding Java applet, Citrix support, file access, file browsing, file server entry, application of a webtype ACL, HTTP proxy, port forwarding, or URL entry over WebVPN for this user or group policy, use the **functions** command in webvpn configuration mode. To remove a configured function, use the **no** form of this command.

functions {**auto-download** | **citrix** | **file-access** | **file-browsing** | **file-entry** | **filter** | **http-proxy** | **url-entry** | **port-forward** | **none**}

no functions {**auto-download** | **citrix** | **file-access** | **file-browsing** | **file-entry** | **filter** | **http-proxy** | **url-entry** | **port-forward** | **none**}

Syntax Description

auto-download	Enables or disables automatic download of the port forwarding Java applet after WebVPN login. You must first enable port forwarding, Outlook/Exchange proxy, or HTTP proxy.
citrix	Enables or disables support for terminal services from a MetaFrame Application Server to the remote user. This keyword lets the ASA act as a secure gateway within a secure Citrix configuration. These services provide users with access to MetaFrame applications through a standard Web browser.
file-access	Enables or disables file access. When enabled, the WebVPN home page lists file servers in the server list. You must enable file access to enable file browsing and/or file entry.
file-browsing	Enables or disables browsing for file servers and shares. You must enable file browsing to allow user entry of a file server.
file-entry	Enables or disables user ability to enter names of file servers.
filter	Applies a webtype ACL. When enabled, the ASA applies the webtype ACL defined with the WebVPN **filter** command.
http-proxy	Enables or disables the forwarding of an HTTP applet proxy to the remote user. The proxy is useful for technologies that interfere with proper mangling, such as Java, ActiveX, and flash. It bypasses mangling while ensuring the continued use of the ASA. The forwarded proxy modifies the browser's old proxy configuration automatically and redirects all HTTP and HTTPS requests to the new proxy configuration. It supports virtually all client side technologies, including HTML, CSS, JavaScript, VBScript, ActiveX, and Java. The only browser it supports is Microsoft Internet Explorer.
none	Sets a null value for all WebVPN functions. Prevents inheriting functions from a default or specified group policy.
port-forward	Enables port forwarding. When enabled, the ASA uses the port forwarding list defined with the WebVPN **port-forward** command.
url-entry	Enables or disables user entry of URLs. When enabled, the ASA still restricts URLs with any configured URL or network ACLs. When URL entry is disabled, the ASA restricts WebVPN users to the URLs on the home page.

Defaults

Functions are disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	The **auto-download** and **citrix** keywords were added.
8.0(2)	This command was deprecated.

Usage Guidelines

To remove all configured functions, including a null value created by issuing the **functions none** command, use the **no** form of this command without arguments. The **no** option allows inheritance of a value from another group policy. To prevent inheriting function values, use the **functions none** command.

Examples

The following example shows how to configure file access and file browsing for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# functions file-access file-browsing
```

Related Commands

Command	Description
webvpn	Use in group-policy configuration mode or in username configuration mode. Lets you enter webvpn mode to configure parameters that apply to group policies or usernames.

CHAPTER 23

gateway through hw-module module shutdown Commands

gateway

To specify which group of call agents are managing a particular gateway, use the **gateway** command in mgcp map configuration mode. To remove the configuration, use the **no** form of this command.

gateway *ip_address* [*group_id*]

Syntax Description

gateway	The group of call agents that are managing a particular gateway.
group_id	The ID of the call agent group, from 0 to 2147483647.
ip_address	The IP address of the gateway.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Mgcp map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Use the **gateway** command to specify which group of call agents are managing a particular gateway. The IP address of the gateway is specified with the *ip_address* option. The *group_id* option is a number from 0 to 4294967295 that must correspond with the *group_id* of the call agents that are managing the gateway. A gateway may only belong to one group.

Examples

The following example allows call agents 10.10.11.5 and 10.10.11.6 to control gateway 10.10.10.115, and allows call agents 10.10.11.7 and 10.10.11.8 to control both gateways 10.10.10.116 and 10.10.10.117:

```
hostname(config)# mgcp-map mgcp_policy
hostname(config-mgcp-map)# call-agent 10.10.11.5 101
hostname(config-mgcp-map)# call-agent 10.10.11.6 101
hostname(config-mgcp-map)# call-agent 10.10.11.7 102
hostname(config-mgcp-map)# call-agent 10.10.11.8 102
hostname(config-mgcp-map)# gateway 10.10.10.115 101
hostname(config-mgcp-map)# gateway 10.10.10.116 102
hostname(config-mgcp-map)# gateway 10.10.10.117 102
```

Related Commands

Commands	Description
debug mgcp	Enables the display of debugging information for MGCP.
mgcp-map	Defines an MGCP map and enables mgcp map configuration mode.
show mgcp	Displays MGCP configuration and session information.

gateway-fqdn

To configure the FQDN of the ASA. use the **gateway-fqdn** command. To remove the configuration, use the **no** form of this command.

gateway-fqdn value {**FQDN_Name** | **none**}

no gateway-fqdn

Syntax Description

fqdn-name	Defines the ASA FQDN to push down to the AnyConnect client.
none	Defines the FQDN as null value where the FQDN is not specified. The global FQDN configurd using hostname and domain-name commands will be used if available.

Defaults

The default FQDN name is not set in the default group policy. New group policies are set to inherit this value.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
group-policy configuration	•		•		

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

If you have configured Load Balancing between your ASAs, specify the FQDN of the ASA in order to resolve the ASA IP address used for re-establishing the VPN session. This setting is critical to support client roaming between networks of different IP protocols (such as IPv4 to IPv6).

You cannot use the ASA FQDN present in the AnyConnect profile to derive the ASA IP address after roaming. The addresses may not match the correct device (the one the tunnel was established to) in the load balancing scenario.

If the ASA's FQDN is not pushed to the client, the client will try to reconnect to whatever IP address the tunnel had previously established. In order to support roaming between networks of different IP protocols (from IPv4 to IPv6), AnyConnect must perform name resolution of the device FQDN after roaming, so that it can determine which ASA address to use for re-establishing the tunnel. The client uses the ASA FQDN present in its profile during the initial connection. During subsequent session reconnects, it always uses the device FQDN pushed by ASA (and configured by the administrator in the group policy), when available. If the FQDN is not configured, the ASA derives the device FQDN (and sends it to the client) from whatever is set under Device Setup > Device Name/Password and Domain Name in ASDM.

If the device FQDN is not pushed by the ASA, the client cannot reestablish the VPN session after roaming between networks of different IP protocols.

Examples

The following example defines the FQDN of the ASA as ASAName.example.cisco.com

```
hostname(config-group-policy)# gateway-fqdn value ASAName.example.cisco.com
hostname(config-group-policy)#
```

The following example removes the FQDN of the ASA from the group policy. The group policy then inherits this value from the Default Group Policy.

```
hostname(config-group-policy)# no gateway-fqdn
hostname(config-group-policy)#
```

The following example defines the FQDN as having no value. The global FQDN configurd using hostname and domain-name commands will be used if available.

```
hostname(config-group-policy)# gateway-fqdn none
hostname(config-group-policy)#
```

group

To specify the Diffie-Hellman group in an IKEv2 security association (SA) for AnyConnect IPsec connections, use the **group** command in ikev2 policy configuration mode. To remove the command and use the default setting, use the **no** form of this command:

group {**1** | **2** | **5** | **14** | **19** | **20** | **21** | **24**}

no group {**1** | **2** | **5** | **14** | **19** | **20** | **21** | **24**}

Syntax Description

1	Specifies the 768-bit Diffie-Hellman group 1 (not supported in FIPS mode).
2	Specifies the 1024-bit Diffie-Hellman group 2.
5	Specifies the 1536-bit Diffie-Hellman group 5.
14	Choose ECDH group as the IKEv2 DH key exchange group.
19	Choose ECDH groups as the IKEv2 DH key exchange group.
20	Choose ECDH groups as the IKEv2 DH key exchange group.
21	Choose ECDH groups as the IKEv2 DH key exchange group.
24	Choose ECDH groups as the IKEv2 DH key exchange group.

Defaults

The default Diffie-Hellman group is group 2.

Usage Guidelines

An IKEv2 SA is a key used in Phase 1 to enable IKEv2 peers to communicate securely in Phase 2. After entering the **crypto ikev2 policy** command, you can use the **group** command to set the SA Diffie-Hellman group. The ASA and the AnyConnect client use the group identifier to derive a shared secret without transmitting it to each other. The lower the Diffie-Hellman group number, the less CPU time it requires to execute. The higher the Diffie-Hellman group number, the greater the security.

When the AnyConnect client is operating in non-FIPS mode, the ASA supports Diffie-Hellman groups 1, 2 and 5. In FIPS mode, it supports groups 2 and 5. Therefore, if you configure the ASA to use *only* group 1, the AnyConnect client in FIPS mode will fail to connect.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Ikev2 policy configuration	•	—	•	—	—

Command History

Release	Modification
8.4(1)	This command was added.
9.0(1)	Added the ability to choose an ECDH group as the IKEv2 DH key exchange group.

Examples

The following example enters ikev2 policy configuration mode and sets the Diffie-Hellman group to group 5:

```
hostname(config)# crypto ikev2 policy 1
hostname(config-ikev2-policy)# group 5
```

Related Commands

Command	Description
encryption	Specifies the encryption algorithm in an IKEv2 SA for AnyConnect IPsec connections.
group	Specifies the Diffie-Hellman group in an IKEv2 SA for AnyConnect IPsec connections.
lifetime	Specifies the SA lifetime for the IKEv2 SA for AnyConnect IPsec connections.
prf	Specifies the pseudo-random function in an IKEv2 SA for AnyConnect IPsec connections.

group-alias

To create one or more alternate names by which the user can refer to a tunnel group, use the **group-alias** command in tunnel-group webvpn configuration mode. To remove an alias from the list, use the **no** form of this command.

group-alias *name* [**enable | disable**]

no group-alias *name*

Syntax Description

disable	Disables the group alias.
enable	Enables a previously disabled group alias.
name	Specifies the name of a tunnel group alias. This can be any string you choose, except that the string cannot contain spaces.

Defaults

There is no default group alias, but if you do specify a group alias, that alias is enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tunnel-group webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

The group alias that you specify appears in the drop-down list on the login page. Each group can have multiple aliases or no alias. This command is useful when the same group is known by several common names, such as “Devtest” and “QA”.

Examples

The following example shows the commands for configuring the tunnel group named “devtest” and establishing the aliases “QA” and “Fra-QA” for the group:

```
hostname(config)# tunnel-group devtest type webvpn
hostname(config)# tunnel-group devtest webvpn-attributes
hostname(config-tunnel-webvpn)# group-alias QA
hostname(config-tunnel-webvpn)# group-alias Fra-QA
hostname(config-tunnel-webvpn)#
```

Related Commands

Command	Description
clear configure tunnel-group	Clears the entire tunnel group database or the named tunnel group configuration.
show webvpn group-alias	Displays the aliases for the specified tunnel group or for all tunnel groups.
tunnel-group webvpn-attributes	Enters the tunnel-group webvpn configuration mode for configuring WebVPN tunnel group attributes.

group-delimiter

To enable group name parsing and specify the delimiter to be used when parsing group names from the user names that are received when tunnels are being negotiated, use the **group-delimiter** command in global configuration mode. To disable this group name parsing, use the **no** form of this command.

group-delimiter *delimiter*

no group-delimiter

Syntax Description

delimiter	Specifies the character to use as the group name delimiter. Valid values are: @, #, and !.

Defaults

By default, no delimiter is specified, disabling group-name parsing.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The delimiter is used to parse tunnel group names from user names when tunnels are negotiated. By default, no delimiter is specified, disabling group name parsing.

Examples

This example shows the **group-delimiter** command to change the group delimiter to the hash mark (#):

```
hostname(config)# group-delimiter #
```

Related Commands

Command	Description
clear configure group-delimiter	Clears the configured group delimiter.
show running-config group-delimiter	Displays the current group delimiter value.
strip-group	Enables or disables strip group processing.

group-lock

To restrict remote users to access through the tunnel group only, issue the **group-lock** command in group-policy configuration mode or username configuration mode. To remove the **group-lock** attribute from the running configuration, use the **no** form of this command.

group-lock {value *tunnel-grp-name* **| none}**

no group-lock

Syntax Description

none	Sets group-lock to a null value, thereby allowing no group lock restriction. Prevents inheriting a group lock value from a default or specified group policy.
value *tunnel-grp-name*	Specifies the name of an existing tunnel group that the ASA requires for the user to connect.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy configuration	•	—	•	—	—
Username configuration	•	—	•	—	—

Usage Guidelines

To disable group lock, use the **group-lock none** command. The **no group-lock** command allows inheritance of a value from another group policy.

Group lock restricts users by checking if the group configured in the VPN client is the same as the tunnel group to which the user is assigned. If it is not, the ASA prevents the user from connecting. If you do not configure group lock, the ASA authenticates users without regard to the assigned group.

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to set group lock for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# group-lock value tunnel group name
```

group-object

To add object groups, use the **group-object** command in protocol, network, service, and icmp-type, and object-group user configuration modes. To remove network object groups, use the **no** form of this command.

group-object *obj_grp_name*

no group-object *obj_grp_name*

Syntax Description

obj_grp_name	Identifies the object group (one to 64 characters) and can be any combination of letters, digits, and the "_", "-", "." characters.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Protocol, network, service, icmp-type, and object-group user configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.4(2)	Add support for adding object groups in the object-group user configuration mode for use with the Identity Firewall feature.

Usage Guidelines

The **group-object** command is used with the **object-group** command to define an object that itself is an object group. It is used in protocol, network, service, and icmp-type, object-group user configuration modes. This sub-command allows logical grouping of the same type of objects and construction of hierarchical object groups for structured configuration.

Duplicate objects are allowed in an object group if they are group objects. For example, if object 1 is in both group A and group B, it is allowed to define a group C which includes both A and B. It is not allowed, however, to include a group object which causes the group hierarchy to become circular. For example, it is not allowed to have group A include group B and then also have group B include group A.

The maximum allowed levels of a hierarchical object group is 10.

See the **user-group object** command for information about using the **group-object** command with the Identity Firewall feature.

Note The security appliance does not support IPv6 nested object groups, so you cannot use the **group-object** command for an object with IPv6 entities in it under another IPv6 object-group.

Examples

The following example shows how to use the **group-object** command in network configuration mode eliminate the need to duplicate hosts:

```
hostname(config)# object-group network host_grp_1
hostname(config-network)# network-object host 192.168.1.1
hostname(config-network)# network-object host 192.168.1.2
hostname(config-network)# exit
hostname(config)# object-group network host_grp_2
hostname(config-network)# network-object host 172.23.56.1
hostname(config-network)# network-object host 172.23.56.2
hostname(config-network)# exit
hostname(config)# object-group network all_hosts
hostname(config-network)# group-object host_grp_1
hostname(config-network)# group-object host_grp_2
hostname(config-network)# exit
hostname(config)# access-list grp_1 permit tcp object-group host_grp_1 any eq ftp
hostname(config)# access-list grp_2 permit tcp object-group host_grp_2 any eq smtp
hostname(config)# access-list all permit tcp object-group all-hosts any eq w
```

The following example shows how to use the **group-object** command with the **object-group user** command to add a locally defined object group for use with the Identity Firewall feature:

```
hostname(config)# object-group user sampleuser1-group
hostname(config-object-group user)# description group members of sampleuser1-group
hostname(config-object-group user)# user-group CSCO\\group.sampleusers-all
hostname(config-object-group user)# user CSCO\user2
hostname(config-object-group user)# exit
hostname(config)# object-group user sampleuser2-group
hostname(config-object-group user)# description group members of sampleuser2-group
hostname(config-object-group user)# group-object sampleuser1-group
hostname(config-object-group user)# user-group CSCO\\group.sampleusers-marketing
hostname(config-object-group user)# user CSCO\user3
```

Related Commands

Command	Description
clear configure object-group	Removes all the **object-group** commands from the configuration.
network-object	Adds a network object to a network object group.
object-group	Defines object groups to optimize your configuration.
object-group user	Creates a user group object for the Identity Firewall feature.
port-object	Adds a port object to a service object group.
show running-config object-group	Displays the current object groups.

group-policy

To create or edit a group policy, use the **group-policy** command in global configuration mode. To remove a group policy from the configuration, use the **no** form of this command.

group-policy *name* {**internal [from** *group-policy_name*] | **external server-group** *server_group* **password** *server_password*}

no group-policy *name*

Syntax Description

external server-group *server_group*	Specifies the group policy as external and identifies the AAA server group for the ASA to query for attributes.
from *group-policy_name*	Initializes the attributes of this internal group policy to the values of a preexisting group policy.
internal	Identifies the group policy as internal.
name	Specifies the name of the group policy. The name can be up to 64 characters long and can contain spaces. Group names with spaces must be enclosed in double quotes, for example, “Sales Group”.
password *server_password*	Provides the password to use when retrieving attributes from the external AAA server group. The password can be up to 128 characters long and cannot contain spaces.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0.1	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

A default group policy, named “DefaultGroupPolicy,” always exists on the ASA. However, this default group policy does not take effect unless you configure the ASA to use it. For configuration instructions, see the CLI configuration guide.

Use the **group-policy attributes** command to enter group-policy configuration mode, in which you can configure any of the group-policy Attribute-Value Pairs. The DefaultGroupPolicy has these Attribute-Value Pairs:

Attribute	Default Value
backup-servers	keep-client-config
banner	none
client-access-rules	none
client-firewall	none
default-domain	none
dns-server	none
group-lock	none
ip-comp	disable
ip-phone-bypass	disabled
ipsec-udp	disabled
ipsec-udp-port	10000
leap-bypass	disabled
nem	disabled
password-storage	disabled
pfs	disable
re-xauth	disable
secure-unit-authentication	disabled
split-dns	none
split-tunnel-network-list	none
split-tunnel-policy	tunnelall
user-authentication	disabled
user-authentication-idle-timeout	none
vpn-access-hours	unrestricted
vpn-filter	none
vpn-idle-timeout	30 minutes
vpn-session-timeout	none
vpn-simultaneous-logins	3
vpn-tunnel-protocol	IPsec WebVPN
wins-server	none

In addition, you can configure webvpn configuration mode attributes for the group policy, either by entering the **webvpn** command in group policy configuration mode or by entering the **group-policy attributes** command and then entering the **webvpn** command in group-webvpn configuration mode. See the description of the **group-policy attributes** command for details.

Examples

The following example shows how to create an internal group policy with the name “FirstGroup”:

```
hostname(config)# group-policy FirstGroup internal
```

The following example shows how to create an external group policy with the name “ExternalGroup,” the AAA server group “BostonAAA,” and the password “12345678”:

```
hostname(config)# group-policy ExternalGroup external server-group BostonAAA password
12345678
```

Related Commands

Command	Description
clear configure group-policy	Removes the configuration for a particular group policy or for all group policies.
group-policy attributes	Enters group-policy configuration mode, which lets you configure attributes and values for a specified group policy or lets you enter webvpn configuration mode to configure WebVPN attributes for the group.
show running-config group-policy	Displays the running configuration for a particular group policy or for all group policies.
webvpn	Enters webvpn configuration mode, in which you can configure the WebVPN attributes for the specified group.

group-policy attributes

To enter the group-policy configuration mode, use the **group-policy attributes** command in global configuration mode. To remove all attributes from a group policy, user the **no** form of this command.

group-policy *name* **attributes**

no group-policy *name* **attributes**

Syntax Description

name	Specifies the name of the group policy.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

In group-policy configuration mode, you can configure Attribute-Value Pairs for a specified group policy or enter group-policy webvpn configuration mode to configure WebVPN attributes for the group.

The syntax of the commands in attributes mode have the following characteristics in common:

- The **no** form removes the attribute from the running configuration, and enables inheritance of a value from another group policy.
- The **none** keyword sets the attribute in the running configuration to a null value, thereby preventing inheritance.
- Boolean attributes have explicit syntax for enabled and disabled settings.

A default group policy, named DefaultGroupPolicy, always exists on the ASA. However, this default group policy does not take effect unless you configure the ASA to use it. For configuration instructions, see the CLI configuration guide.

The **group-policy attributes** command enters group-policy configuration mode, in which you can configure any of the group-policy Attribute-Value Pairs. The DefaultGroupPolicy has these Attribute-Value Pairs:

Attribute	Default Value
backup-servers	keep-client-config
banner	none
client-access-rule	none
client-firewall	none
default-domain	none
dns-server	none
group-lock	none
ip-comp	disable
ip-phone-bypass	disabled
ipsec-udp	disabled
ipsec-udp-port	10000
leap-bypass	disabled
nem	disabled
password-storage	disabled
pfs	disable
re-xauth	disable
secure-unit-authentication	disabled
split-dns	none
split-tunnel-network-list	none
split-tunnel-policy	tunnelall
user-authentication	disabled
user-authentication-idle-timeout	none
vpn-access-hours	unrestricted
vpn-filter	none
vpn-idle-timeout	30 minutes
vpn-session-timeout	none
vpn-simultaneous-logins	3
vpn-tunnel-protocol	IPsec WebVPN
wins-server	none

In addition, you can configure webvpn-mode attributes for the group policy, by entering the **group-policy attributes** command and then entering the **webvpn** command in group-policy configuration mode. See the description of the **webvpn** command (group-policy attributes and username attributes modes) for details.

Examples

The following example shows how to enter group-policy attributes mode for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)#
```

Related Commands

Command	Description
clear configure group-policy	Removes the configuration for a particular group policy or for all group policies.
group-policy	Creates, edits, or removes a group policy.
show running-config group-policy	Displays the running configuration for a particular group policy or for all group policies.
webvpn	Enters group-webvpn configuration mode, in which you can configure the WebVPN attributes for the specified group.

group-prompt

To customize the group prompt of the WebVPN page login box that is displayed to WebVPN users when they connect to the ASA, use the **group-prompt** command in webvpn customization configuration mode. To remove the command from the configuration and cause the value to be inherited, use the **no** form of this command.

group-prompt {**text** | **style**} *value*

no group-prompt {**text** | **style**} *value*

Syntax Description

text	Specifies a change to the text.
style	Specifies a change the style.
value	The actual text to display or Cascading Style Sheet (CSS) parameters (the maximum bunber is 256 characters).

Defaults

The default text of the group prompt is “GROUP:”.

The default style of the group prompt is color:black;font-weight:bold;text-align:right.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn customization configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

The **style** option is expressed as any valid CSS parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium (W3C) website at www.w3.org. Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at www.w3.org/TR/CSS21/propidx.html.

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.
- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma-separated entry indicates the level of intensity of each color to combine with the others.
- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.

Note To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

Examples

In the following example, the text is changed to "Corporate Group:", and the default style is changed with the font weight increased to bolder:

```
F1-asa1(config)# webvpn
F1-asa1(config-webvpn)# customization cisco
F1-asa1(config-webvpn-custom)# group-prompt text Corporate Group:
F1-asa1(config-webvpn-custom)# group-prompt style font-weight:bolder
```

Related Commands

Command	Description
password-prompt	Customizes the password prompt of the WebVPN page.
username-prompt	Customizes the username prompt of the WebVPN page.

group-search-timeout

To specify the maximum time to wait for a response from an Active Directory server queried using the **show ad-groups** command, use the **group-search-timeout** command in aaa-server host configuration mode. To remove the command from the configuration, use the **no** form of the command:

group-search-timeout *seconds*

no group-search-timeout *seconds*

Syntax Description

seconds	The time to wait for a response from the Active Directory server, from 1 to 300 seconds.

Defaults

The default is 10 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Aaa-server host configuration	•	—	•	—	—

Command History

Release	Modification
8.0(4)	This command is introduced.

Usage Guidelines

The **show ad-groups** command applies only to Active Directory servers using LDAP, and displays groups that are listed on an Active Directory server. Use the **group-search-timeout** command to adjust the time to wait for a response from the server.

Examples

The following example sets the timeout to 20 seconds:

```
hostname(config-aaa-server-host)#group-search-timeout 20
```

Related Commands

Command	Description
ldap-group-base-dn	Specifies a level in the Active Directory hierarchy where the server begins searching for groups that are used by dynamic group policies.
show ad-groups	Displays groups that are listed on an Active Directory server.

group-url

To specify incoming URLs or IP addresses for the group, use the **group-url** command in tunnel-group webvpn configuration mode. To remove a URL from the list, use the **no** form of this command.

group-url *url* [**enable** | **disable**]

no group-url *url*

Syntax Description

disable	Disables the URL, but does not remove it from the list.
enable	Enables the URL.
url	Specifies a URL or IP address for this tunnel group.

Defaults

There is no default URL or IP address, but if you do specify a URL or IP address, it is enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tunnel-group webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

Specifying a group URL or IP address eliminates the need for the user to select a group at login. When a user logs in, the ASA looks for the user's incoming URL/address in the tunnel group policy table. If it finds the URL/address and if this command is enabled in the tunnel group, then the ASA automatically selects the associated tunnel group and presents the user with only the username and password fields in the login window. This simplifies the user interface and has the added advantage of never exposing the list of groups to the user. The login window that the user sees uses the customizations configured for that tunnel group.

If the URL/address is disabled and the **group-alias** command is configured, then the drop-down list of groups is also displayed, and the user must make a selection.

You can configure multiple URLs/addresses (or none) for a group. Each URL/address can be enabled or disabled individually. You must use a separate **group-url** command for each URL/address specified. You must specify the entire URL/address, including either the HTTP or HTTPS protocol.

You cannot associate the same URL/address with multiple groups. The ASA verifies the uniqueness of the URL/address before accepting it for a tunnel group.

Examples

The following example shows the commands for configuring the WebVPN tunnel group named “test” and establishing two group URLs, “http://www.cisco.com” and “https://supplier.example.com” for the group:

```
hostname(config)# tunnel-group test type webvpn
hostname(config)# tunnel-group test webvpn-attributes
hostname(config-tunnel-webvpn)# group-url http://www.cisco.com
hostname(config-tunnel-webvpn)# group-url https://supplier.example.com
hostname(config-tunnel-webvpn)#
```

The following example enables the group URLs http://www.cisco.com and http://192.168.10.10 for the tunnel group named RadiusServer:

```
hostname(config)# tunnel-group RadiusServer type webvpn
hostname(config)# tunnel-group RadiusServer general-attributes
hostname(config-tunnel-general)# authentication server-group RADIUS
hostname(config-tunnel-general)# accounting-server-group RADIUS
hostname(config-tunnel-general)# tunnel-group RadiusServer webvpn-attributes
hostname(config-tunnel-webvpn)# group-alias “Cisco Remote Access” enable
hostname(config-tunnel-webvpn)# group-url http://www.cisco.com enable
hostname(config-tunnel-webvpn)# group-url http://192.168.10.10 enable
hostname(config-tunnel-webvpn)#
```

Related Commands

Command	Description
clear configure tunnel-group	Clears the entire tunnel group database or the named tunnel group configuration.
show webvpn group-url	Displays the URLs for the specified tunnel group or for all tunnel groups.
tunnel-group webvpn-attributes	Enters the webvpn configuration mode for configuring WebVPN tunnel group attributes.

h245-tunnel-block

To block H.245 tunneling in H.323, use the **h245-tunnel-block** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

h245-tunnel-block action [**drop-connection** | **log**]

no h245-tunnel-block action [**drop-connection** | **log**]

Syntax Description

drop-connection	Drops the call setup connection when an H.245 tunnel is detected.
log	Issues a log when an H.245 tunnel is detected.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to block H.245 tunneling on an H.323 call:

```
hostname(config)# policy-map type inspect h323 h323_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# h245-tunnel-block action drop-connection
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

health-check

To enab;e the cluster health check feature, use the **health-check** command in cluster group configuration mode. To the health check, use the **no** form of this command.

health-check [**holdtime** *timeout*] [**vss-enabled**]

no health-check [**holdtime** *timeout*] [**vss-enabled**]

Syntax Description

holdtime *timeout*	(Optional) Determines the amount of time between keepalive or interface status messages, between .8 and 45 seconds. The default is 3 seconds.
vss-enabled	If you configure the cluster control link as an EtherChannel (recommended), and it is connected to a VSS or vPC pair, then you might need to enable the **vss-enabled** option. For some switches, when one unit in the VSS/vPC is shutting down or booting up, EtherChannel member interfaces connected to that switch may appear to be Up to the ASA, but they are not passing traffic on the switch side. The ASA can be erroneously removed from the cluster if you set the ASA holdtime timeout to a low value (such as .8 seconds), and the ASA sends keepalive messages on one of these EtherChannel interfaces. When you enable **vss-enabled**, the ASA floods the keepalive messages on all EtherChannel interfaces in the cluster control link to ensure that at least one of the switches can receive them.

Command Default

Health check is enabled by default, with a holdtime of 3 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Cluster group configuration	•	•	•	—	•

Command History

Release	Modification
9.0(1)	We introduced this command.
9.1(4)	We added the **vss-enabled** keyword.

Usage Guidelines

We recommend that you temporarily disable the health check with the **no health-check** command when any topology changes occur (such as adding or removing a data interface, enabling or disabling an interface on the ASA or the switch, or adding an additional switch to form a VSS or vPC). After the cluster topology is stable, you must re-enable the cluster health check feature.

Keepalive messages between members determine member health. If a unit does not receive any keepalive messages from a peer unit within the holdtime period, the peer unit is considered unresponsive or dead. Interface status messages detect link failure. If an interface fails on a particular unit, but the same interface is active on other units, then the unit is removed from the cluster.

If a unit does not receive interface status messages within the holdtime, then the amount of time before the ASA removes a member from the cluster depends on the type of interface and whether the unit is an established member or is joining the cluster. For EtherChannels (spanned or not), if the interface is down on an established member, then the ASA removes the member after 9 seconds. If the unit is joining the cluster as a new member, the ASA waits 45 seconds before rejecting the new unit. For non-EtherChannels, the unit is removed after 500 ms, regardless of the member state.

This command is not part of the bootstrap configuration, and is replicated from the master unit to the slave units.

Examples

The following example disables the health check:

```
hostname(config)# cluster group cluster1
hostname(cfg-cluster)# no health-check
```

Related Commands

Command	Description
clacp system-mac	When using spanned EtherChannels, the ASA uses cLACP to negotiate the EtherChannel with the neighbor switch.
cluster group	Names the cluster and enters cluster configuration mode.
cluster-interface	Specifies the cluster control link interface.
cluster interface-mode	Sets the cluster interface mode.
conn-rebalance	Enables connection rebalancing.
console-replicate	Enables console replication from slave units to the master unit.
enable (cluster group)	Enables clustering.
key	Sets an authentication key for control traffic on the cluster control link.
local-unit	Names the cluster member.
mtu cluster-interface	Specifies the maximum transmission unit for the cluster control link interface.
priority (cluster group)	Sets the priority of this unit for master unit elections.

hello-interval

To specify the interval between EIGRP hello packets sent on an interface, use the **hello-interval** command in interface configuration mode. To return the hello interval to the default value, use the **no** form of this command.

hello-interval eigrp *as-number seconds*

no hello-interval eigrp *as-number seconds*

Syntax Description

as-number	Specifies the autonomous system number of the EIGRP routing process.
seconds	Specifies the interval between hello packets that are sent on the interface. Valid values are from 1 to 65535 seconds.

Defaults

The default is 5 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

The smaller the hello interval, the faster topological changes will be detected, but more routing traffic will occur. This value must be the same for all routers and access servers on a specific network.

Examples

The following example sets the EIGRP hello interval to 10 seconds and the hold time to 30 seconds:

```
hostname(config-if)# hello-interval eigrp 100 10
hostname(config-if)# hold-time eigrp 100 30
```

Related Commands

Command	Description
hold-time	Configures the EIGRP hold time advertised in hello packets.

help

To display help information for the command specified, use the **help** command in user EXEC mode.

help {*command* | **?**}

Syntax Description

?	Displays all commands that are available in the current privilege level and mode.
command	Specifies the command for which to display the CLI help.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
User EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **help** command displays help information about all commands. You can see help for an individual command by entering the **help** command followed by the command name. If you do not specify a command name and enter **?** instead, all commands that are available in the current privilege level and mode display.

If you enable the **pager** command and after 24 lines display, the listing pauses, and the following prompt appears:

```
<--- More --->
```

The More prompt uses syntax similar to the UNIX **more** command as follows:

- To see another screen of text, press the **Space** bar.
- To see the next line, press the **Enter** key.
- To return to the command line, press the **q** key.

Examples

The following example shows how to display help for the **rename** command:

```
hostname# help rename

USAGE:

        rename /noconfirm [{disk0:|disk1:|flash:}] <source path> [{disk0:|disk1:
```

```
|flash:}] <destination path>

DESCRIPTION:

rename          Rename a file

SYNTAX:

/noconfirm                      No confirmation
{disk0:|disk1:|flash:} Optional parameter that specifies the filesystem
<source path>           Source file path
<destination path>      Destination file path

hostname#
```

The following examples shows how to display help by entering the command name and a question mark:

```
hostname(config)# enable ?
usage: enable password <pwd> [encrypted]
```

Help is available for the core commands (not the **show**, **no**, or **clear** commands) by entering **?** at the command prompt:

```
hostname(config)# ?
aaa             Enable, disable, or view TACACS+ or RADIUS
                user authentication, authorization and accounting
…
```

Related Commands

Command	Description
show version	Displays information about the operating system software.

hidden-parameter

To specify hidden parameters in the HTTP POST request that the ASA submits to the authenticating web server for SSO authentication, use the **hidden-parameter** command in aaa-server-host configuration mode. To remove all hidden parameters from the running configuration, use the **no** form of this command.

hidden-parameter *string*

no hidden-parameter

Note To configure SSO with the HTTP protocol correctly, you must have a thorough working knowledge of authentication and HTTP protocol exchanges.

Syntax Description

string	A hidden parameter embedded in the form and sent to the SSO server. You can enter it on multiple lines. The maximum number of characters for each line is 255. The maximum number of characters for all lines together—the complete hidden parameter—is 2048.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Aaa-server-host configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

This is an SSO with HTTP Forms command.

The WebVPN server of the ASA uses an HTTP POST request to submit an SSO authentication request to an authenticating web server. That request may require specific hidden parameters from the SSO HTML form—other then username and password—that are not visible to the user. You can discover hidden parameters that the web server expects in the POST request by using a HTTP header analyzer on a form received from the web server.

The **hidden-parameter** command lets you specify a hidden parameter that the web server requires in the authentication POST request. If you use a header analyzer, you can copy and paste the entire hidden parameter string, including any encoded URL parameters.

For ease of entry, you can enter a hidden parameter on multiple, sequential lines. The ASA then concatenates the lines into a single hidden parameter. While the maximum characters per hidden-parameter line is 255 characters, you can enter fewer characters on each line.

Note Any question mark in the string must be preceded by a **Ctrl+v** escape sequence.

Examples

The following example shows a hidden parameter comprised of four form entries and their values, separated by &. Excerpted from the POST request, the four entries and their values are:

- SMENC with a value of ISO-8859-1
- SMLOCALE with a value of US-EN
- target with a value of https%3A%2F%2Ftools.cisco.com%2Femco%2Fappdir%2FAreaRoot.do %3FEMCOPageCode%3DENG
- smauthreason with a value of 0

SMENC=ISO-8859-1&SMLOCALE=US-EN&target=https%3A%2F%2Ftools.cisco.com%2Femco%2Fappdir%2FAreaRoot.do%3FEMCOPageCode%3DENG&smauthreason=0

```
hostname(config)# aaa-server testgrp1 host example.com
hostname(config-aaa-server-host)# hidden-parameter SMENC=ISO-8859-1&SMLOCALE=US-EN&targe
hostname(config-aaa-server-host)# hidden-parameter t=https%3A%2F%2Ftools.cisco.com%2Femc
hostname(config-aaa-server-host)# hidden-parameter o%2Fappdir%2FAreaRoot.do%3FEMCOPageCo
hostname(config-aaa-server-host)# hidden-parameter de%3DENG&smauthreason=0
hostname(config-aaa-server-host)#
```

Related Commands

Command	Description
action-uri	Specifies a web server URI to receive a username and password for SSO authentication.
auth-cookie-name	Specifies a name for the authentication cookie.
password-parameter	Specifies the name of the HTTP POST request parameter in which a user password must be submitted for SSO authentication.
start-url	Specifies the URL at which to retrieve a prelogin cookie.
user-parameter	Specifies the name of the HTTP POST request parameter in which a username must be submitted for SSO authentication.

hidden-shares

To control the visibility of hidden shares for CIFS files, use the **hidden-shares** command in group-webvpn configuration mode. To remove the hidden shares option from the configuration, use the **no** form of this command.

hidden-shares {**none** | **visible**}

[no] hidden-shares {**none** | **visible**}

Syntax Description

none	Specifies that no configured hidden shares are visible or accessible to users.
visible	Reveals hidden shares, making them accessible to users.

Defaults

The default behavior for this command is none.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Group-webvpn configuration	•	•	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

A hidden share is identified by a dollar sign ($) at the end of the share name. For example, drive C is shared as C$. With hidden shares, a shared folder is not displayed, and users are restricted from browsing or accessing these hidden resources.

The **no** form of the **hidden-shares** command removes the option from the configuration and disables hidden shares as a group policy attribute.

Examples

The following example makes visible WebVPN CIFS hidden-shares related to GroupPolicy2:

```
hostname(config)# webvpn
hostname(config-group-policy)# group-policy GroupPolicy2 attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# hidden-shares visible
hostname(config-group-webvpn)#
```

Related Commands

Command	Description
debug webvpn cifs	Displays debugging messages about the CIFS.
group-policy attributes	Enters group-policy configuration mode, which lets you configure attributes and values for a specified group policy or lets you enter webvpn configuration mode to configure WebVPN attributes for the group.
url-list	Configures a set of URLs for WebVPN users to access.
url-list	Applies a list of WebVPN servers and URLs to a particular user or group policy.

hold-time

To specify the hold time advertised by the ASA in EIGRP hello packets, use the **hold-time** command in interface configuration mode. To return the hello interval to the default value, use the **no** form of this command.

hold-time eigrp *as-number seconds*

no hold-time eigrp *as-number seconds*

Syntax Description

as-number	The autonomous system number of the EIGRP routing process.
seconds	Specifies the hold time, in seconds. Valid values are from 1 to 65535 seconds.

Defaults

The default is 15 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

This value is advertised in the EIGRP hello packets sent by the ASA. The EIGRP neighbors on that interface use this value to determine the availability of the ASA. If they do not receive a hello packet from the ASA during the advertised hold time, the EIGRP neighbors will consider the ASA to be unavailable.

On very congested and large networks, the default hold time might not be sufficient time for all routers and access servers to receive hello packets from their neighbors. In this case, you may want to increase the hold time.

We recommend that the hold time be at least three times the hello interval. If the ASA does not receive a hello packet within the specified hold time, routes through this neighbor are considered unavailable.

Increasing the hold time delays route convergence across the network.

Examples

The following example sets the EIGRP hello interval to 10 seconds and the hold time to 30 seconds:

```
hostname(config-if)# hello-interval eigrp 100 10
```

```
hostname(config-if)# hold-time eigrp 100 30
```

Related Commands

Command	Description
hello-interval	Specifies the interval between EIGRP hello packets sent on an interface.

homepage

To specify a URL for the web page that displays upon login for this WebVPN user or group policy, use the **homepage** command in webvpn configuration mode. To remove a configured home page, including a null value created by issuing the **homepage none** command, use the **no** form of this command.

homepage {**value** *url-string* | **none**}

no homepage

Syntax Description

none	Indicates that there is no WebVPN home page. Sets a null value, thereby disallowing a home page. Prevents inheriting a home page.
value *url-string*	Provides a URL for the home page. The string must begin with either http:// or https://.

Defaults

There is no default home page.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To specify a home page URL for users associated with the group policy, enter a value for the URL string in this command. To inherit a home page from the default group policy, use the **no** form of the comand. The **no** option allows inheritance of a value from another group policy. To prevent inheriting a home page, use the **homepage none** command.

Clientless users are immediately brought to this page after successful authentication. AnyConnect launches the default web browser to this URL upon successful establishment of the VPN connection. On Linux platforms, AnyConnect does not currently support this command and ignores it.

Examples

The following example shows how to specify www.example.com as the home page for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# homepage value http://www.example.com
```

Related Commands

Command	Description
webvpn	Lets you enter webvpn configuration mode to configure parameters that apply to group policies or usernames.

homepage use-smart-tunnel

To allow the group policy home page to use the smart tunnel feature when clientless SSL VPN is used, use the **homepage use-smart-tunnel** command in the group-policy webvpn configuration mode.

homepage {**value** *url-string* | **none**}

homepage use-smart-tunnel

Syntax Description

none	Indicates that there is no WebVPN home page. Sets a null value, thereby disallowing a home page. Prevents inheriting a home page.
value *url-string*	Provides a URL for the home page. The string must begin with either http:// or https://.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Group-policy webvpn configuration	•	—	•	—	—

Command History

Release	Modification
8.3(1)	This command was introduced.

Usage Guidelines

You can use the HTTP capture tool to monitor the browser session and verify that the smart tunnel was initiated during the WebVPN connection. What you see in the browser capture determines whether the request is forwarded to the web page without degradation and whether the smart tunnel is used. If you see something like https://172.16.16.23/+CSCOE+portal.html, the *+CSCO** indicates that the content is degraded by the ASA. When the smart tunnel is initiated, you see an **http get** command to a specific URL without the +CSCO* (such as GET 200 html http://mypage.example.com).

Examples

If you consider a case where Vendor V wants to provide Partner P with clientless access to their interal inventory server pages, Vendor V's administrator must decide the following:

- Will users have access to the inventory pages after they log into a clientless SSL VPN, whether or not they go through the clientless portal?
- Will the smart tunnel be a good choice for access because the page includes a Microsoft Silverlight component?
- Is a tunnel-all policy suitable because once the browser has been tunneled, all tunnel policy forces all browser traffic to go through Vendor V's ASA, leaving Partner P's users with no access to internal resources?

With the assumption that inventory pages are hosted at inv.example.com (10.0.0.0), the following example creates a tunnel policy that contains only one host:

```
hostname(config-webvpn)# smart-tunnel network inventory ip 10.0.0.0
hostname(config-webvpn)# smart-tunnel network inventory host inv.example.com
```

The following example applies a tunnel-specified tunnel policy to the partner's group policy:

```
hostname(config-group-webvpn)# smart-tunnel tunnel-policy tunnelspecified inventory
```

The following example specifies the group policy home page and enables a smart tunnel on it:

```
hostname(config-group-webvpn)# homepage value http://inv.example.com
hostname(config-group-webvpn)# homepage use-smart-tunnel
```

host (network object)

To configure a host for a network object, use the **host** command in object network configuration mode. To remove the host from the object, use the **no** form of this command.

host *ip_address*

no host *ip_address*

Syntax Description

ip_address	Identifies the host IP address for the object, either IPv4 or IPv6.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Object configuration	•	•	•	•	—

Command History

Release	Modification
8.3(1)	This command was introduced.

Usage Guidelines

If you configure an existing network object with a different IP address, the new configuration will replace the existing configuration.

Examples

The following example shows how to create a host network object:

```
hostname (config)# object network OBJECT1
hostname (config-network-object)# host 10.1.1.1
```

Related Commands

Command	Description
clear configure object	Clears all objects created.
description	Adds a description to the network object.
fqdn	Specifies a fully qualified domain name network object.
nat	Enables NAT for the network object.
object network	Creates a network object.
object-group network	Creates a network object group.

Command	Description
range	Specifies a range of addresses for the network object.
show running-config object network	Shows the network object configuration.
subnet	Specifies a subnet network object.

host (parameters)

To specify a host to interact with using RADIUS accounting, use the **host** command in radius-accounting parameter configuration mode, which is accessed by using the **parameters** command in the policy-map type inspect radius-accounting submode. To disable the specified host, use the **no** form of this command.

host *address* [**key** *secret*]

no host *address* [**key** *secret*]

Syntax Description

host	Specifies a single endpoint sending the RADIUS accounting messages.
address	The IP address of the client or server sending the RADIUS accounting messages.
key	Optional keyword to specify the secret of the endpoint sending the gratuitous copy of the accounting messages.
secret	The shared secret key of the endpoint sending the accounting messages used to validate the messages. This can be up to 128 alphanumeric characters.

Defaults

The **no** option is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Radius-accounting parameters configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

Multiple instances of this command are allowed.

Examples

The following example shows how to specify a host with RADIUS accounting:

```
hostname(config)# policy-map type inspect radius-accounting ra
hostname(config-pmap)# parameters
hostname(config-pmap-p)# host 209.165.202.128 key cisco123
```

Related Commands

Commands	Description
inspect radius-accounting	Sets inspection for RADIUS accounting.
parameters	Sets parameters for an inspection policy map.

hostname

To set the ASA hostname, use the **hostname** command in global configuration mode. To restore the default hostname, use the **no** form of this command.

hostname *name*

no hostname [*name*]

Syntax Description

name	Specifies a hostname up to 63 characters. A hostname must start and end with a letter or digit, and have as interior characters only letters, digits, or a hyphen.

Defaults

The default hostname depends on your platform.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	You can no longer use non-alphanumeric characters (other than a hyphen).

Usage Guidelines

The hostname appears as the command line prompt, and if you establish sessions to multiple devices, the hostname helps you keep track of where you enter commands. For multiple context mode, the hostname that you set in the system execution space appears in the command line prompt for all contexts.

The hostname that you optionally set within a context does not appear in the command line, but can be used for the **banner** command **$(hostname)** token.

Examples

The following example sets the hostname to firewall1:

```
hostname(config)# hostname firewall1
firewall1(config)#
```

Related Commands

Command	Description
banner	Sets a login, message of the day, or enable banner.
domain-name	Sets the default domain name.

hpm topn enable

To enable real-time reports in ASDM of the top hosts connecting through the ASA, use the **hpm topn enable** command in global configuration mode. To disable the hosts reporting, use the **no** form of this command.

hpm topn enable

no hpm topn enable

Syntax Description

This command has no arguments or keywords.

Command Default

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.3(1)	This command was introduced.

Usage Guidelines

You might want to disable this command to maximize system performance. This command populates the ASDM Home > Firewall Dashboard > Top 200 Hosts pane.

Examples

The following example enables the top hosts reporting:

```
hostname(config)# hpm topn enable
```

Related Commands

Command	Description
clear configure hpm	Clears the HPM configuration.
show running-config hpm	Shows the HPM configuration.

hsi

To add an HSI to an HSI group for H.323 protocol inspection, use the **hsi** command in hsi group configuration mode. To disable this feature, use the **no** form of this command.

hsi *ip_address*

no hsi *ip_address*

Syntax Description

ip_address	IP address of the host to add. A maximum of five HSIs per HSI group is allowed.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Hsi group configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to add an HSI to an HSI group in an H.323 inspection policy map:

```
hostname(config-pmap-p)# hsi-group 10
hostname(config-h225-map-hsi-grp)# hsi 10.10.15.11
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
endpoint	Adds an endpoint to the HSI group.
hsi-group	Creates an HSI group.
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

hsi-group

To define an HSI group for H.323 protocol inspection and to enter hsi group configuration mode, use the **hsi-group** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

hsi-group *group_id*

no hsi-group *group_id*

Syntax Description

group_id	HSI group ID number, from 0 to 2147483647.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to configure an HSI group in an H.323 inspection policy map:

```
hostname(config-pmap-p)# hsi-group 10
hostname(config-h225-map-hsi-grp)# hsi 10.10.15.11
hostname(config-h225-map-hsi-grp)# endpoint 10.3.6.1 inside
hostname(config-h225-map-hsi-grp)# endpoint 10.10.25.5 outside
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
endpoint	Adds an endpoint to the HSI group.
hsi	Adds an HSI to the HSI group.
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

html-content-filter

To filter Java, ActiveX, images, scripts, and cookies for WebVPN sessions for this user or group policy, use the **html-content-filter** command in webvpn configuration mode. To remove a content filter, use the **no** form of this command.

html-content-filter {**java** | **images** | **scripts** | **cookies** | **none**}

no html-content-filter [**java** | **images** | **scripts** | **cookies** | **none**]

Syntax Description

cookies	Removes cookies from images, providing limited ad filtering and privacy.
images	Removes references to images (removes <IMG> tags).
java	Removes references to Java and ActiveX (removes the <EMBED>, <APPLET>, and <OBJECT> tags.
none	Indicates that there is no filtering. Sets a null value, thereby disallowing filtering. Prevents inheriting filtering values.
scripts	Removes references to scripting (removes <SCRIPT> tags).

Defaults

No filtering occurs.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To remove all content filters, including a null value created by issuing the **html-content-filter none** command, use the **no** form of this command without arguments. The **no** option allows inheritance of a value from another group policy. To prevent inheriting an HTML content filter, use the **html-content-filter none** command.

Using the command a second time overrides the previous setting.

Examples

The following example shows how to set filtering of Java and ActiveX, cookies, and images for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# webvpn
```

```
hostname(config-group-webvpn)# html-content-filter java cookies images
```

Related Commands

Command	Description
webvpn	Lets you enter webvpn configuration mode to configure parameters that apply to group policies or usernames. Lets you enter global configuration mode to configure global settings for WebVPN.

http

To specify hosts that can access the HTTP server internal to the ASA, use the **http** command in global configuration mode. To remove one or more hosts, use the **no** form of this command. To remove the attribute from the configuration, use the **no** form of this command without arguments.

http *ip_address subnet_mask interface_name*

no http

Syntax Description

interface_name	Provides the name of the ASA interface through which the host can access the HTTP server.
ip_address	Provides the IP address of a host that can access the HTTP server.
subnet_mask	Provides the subnet mask of a host that can access the HTTP server.

Defaults

No hosts can access the HTTP server.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to allow the host with the IP address of 10.10.99.1 and the subnet mask of 255.255.255.255 access to the HTTP server via the outside interface:

```
hostname(config)# http 10.10.99.1 255.255.255.255 outside
```

The next example shows how to allow any host access to the HTTP server via the outside interface:

```
hostname(config)# http 0.0.0.0 0.0.0.0 outside
```

Related Commands

Command	Description
clear configure http	Removes the HTTP configuration: disables the HTTP server and removes hosts that can access the HTTP server.
http authentication-certificate	Requires authentication via certificate from users who are establishing HTTPS connections to the ASA.

Command	Description
http redirect	Specifies that the ASA redirect HTTP connections to HTTPS.
http server enable	Enables the HTTP server.
show running-config http	Displays the hosts that can access the HTTP server, and whether or not the HTTP server is enabled.

http authentication-certificate

To require a certficate for authentication with ASDM HTTPS connections, use the **http authentication-certificate** command in global configuration mode. To remove the attribute from the configuration, use the **no** version of this command. To remove all **http authentication-certificate** commands from the configuration, use the **no** version without arguments.

The ASA validates certificates against the PKI trust points. If a certificate does not pass validation, the ASA closes the SSL connection.

http authentication-certificate *interface*

no http authentication-certificate [*interface*]

Syntax Description

interface	Specifies the interface on the ASA that requires certificate authentication.

Defaults

HTTP certificate authentication is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.0.3	This command was deprecated in favor of the **ssl certificate-authentication** command.
8.2.1	This command was re-added; the global **ssl certificate-authentication** command was kept for backwards compatibility.
8.4.7, 9.1.3	Certificate-only authentication was enabled. Previously, this command only added certificate authentication to user authentication when you enabled the **aaa authentication http console** command.

Usage Guidelines

You configure certificate authentication for each interface, so that connections on a trusted/inside interface do not have to provide a certificate. You can use the command multiple times to enable certificate authentication on multiple interfaces.

Examples

The following example shows how to require certificate authentication for clients connecting to the interfaces named outside and external:

```
hostname(config)# http authentication-certificate inside
hostname(config)# http authentication-certificate external
```

Related Commands

Command	Description
clear configure http	Removes the HTTP configuration: disables the HTTP server and removes hosts that can access the HTTP server.
http	Specifies hosts that can access the HTTP server by IP address and subnet mask. Specifies the ASA interface through which the host accesses the HTTP server.
http redirect	Specifies that the ASA redirect HTTP connections to HTTPS.
http server enable	Enables the HTTP server.
show running-config http	Displays the hosts that can access the HTTP server, and whether or not the HTTP server is enabled.
ssl authentication-certificate	To require a certificate for SSL connections.

http[s] (parameters)

To specify the service type for the scansafe inspection policy map, use the **http**[**s**] command in parameters configuration mode. To remove the service type, use the **no** form of this command. You can access the parameters configuration mode by first entering the the **policy-map type inspect scansafe** command.

{**http** | **https**}

no {**http** | **https**}

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

You can only specify one service type for a scansafe inspection policy map, either **http** or **https**. There is no default; you must specify a type.

Examples

The following example creates an inspection policy map, and sets the service type to HTTP:

```
hostname(config)# policy-map type inspect scansafe cws_inspect_pmap1
hostname(config-pmap)# parameters
hostname(config-pmap-p)# http
```

Related Commands

Command	Description
class-map type inspect scansafe	Creates an inspection class map for whitelisted users and groups.
default user group	Specifies the default username and/or group if the ASA cannot determine the identity of the user coming into the ASA.
inspect scansafe	Enables Cloud Web Security inspection on the traffic in a class.

Command	Description
license	Configures the authentication key that the ASA sends to the Cloud Web Security proxy servers to indicate from which organization the request comes.
match user group	Matches a user or group for a whitelist.
policy-map type inspect scansafe	Creates an inspection policy map so you can configure essential parameters for the rule and also optionally identify the whitelist.
retry-count	Enters the retry counter value, which is the amount of time that the ASA waits before polling the Cloud Web Security proxy server to check its availability.
scansafe	In multiple context mode, allows Cloud Web Security per context.
scansafe general-options	Configures general Cloud Web Security server options.
server {**primary** | **backup**}	Configures the fully qualified domain name or IP address of the primary or backup Cloud Web Security proxy servers.
show conn scansafe	Shows all Cloud Web Security connections, as noted by the capitol Z flag.
show scansafe server	Shows the status of the server, whether it's the current active server, the backup server, or unreachable.
show scansafe statistics	Shows total and current http connections.
user-identity monitor	Downloads the specified user or group information from the AD agent.
whitelist	Performs the whitelist action on the class of traffic.

http-comp

To enable compression of HTTP data over a WebVPN connection for a specific group or user, use the **http-comp** command in the group-policy webvpn and username webvpn configuration modes. To remove the command from the configuration and have the value be inherited, use the **no** form of this command.

http-comp {**gzip** | **none**}

no http-comp {**gzip** | **none**}

Syntax Description

gzip	Specifies compression is enabled for the group or user.
none	Specifies compression is disabled for the group or user.

Defaults

By default, compression is set to enabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Group-policy webvpn configuration	•	—	•	—	—
Username webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

For WebVPN connections, the **compression** command configured in global configuration mode overrides the **http-comp** command configured in group policy and username webvpn configuration modes.

Examples

The following example disables compression for the group-policy sales:

```
hostname(config)# group-policy sales attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# http-comp none
```

Related Commands

Command	Description
compression	Enables compression for all SVC, WebVPN, and IPsec VPN connections.

http-proxy

To configure the ASA to use an external proxy server to handle HTTP requests, use the **http-proxy** command in webvpn configuration mode. To remove the HTTP proxy server from the configuration, use the **no** form of this command.

http-proxy {*host* [*port*] [**exclude** `url`] | **pac** *pacfile*} [**username** *username* {**password** *password*}]

no http-proxy

Syntax Description

host	Hostname or IP address for the external HTTP proxy server.
pac *pacfile*	Identifies the PAC file that contains a JavaScript function that specifies one or more proxies.
password	(Optional, and available only if you specify a username) Enter this keyword to accompany each HTTP proxy request with a password to provide basic, proxy authentication.
password	Password to send to the proxy server with each HTTP request.
port	(Optional) Port number used by the HTTP proxy server. The default port is 80, which is the port that the ASA uses if you do not supply a value. The range is 1-65535.
url	Enter a URL or a comma-delimited list of several URLs to exclude from those that can be sent to the proxy server. The string does not have a character limit, but the entire command cannot exceed 512 characters. You can specify literal URLs or use the following wildcards: • ***** to match any string, including slashes (/) and periods (.). You must accompany this wildcard with an alphanumeric string. • **?** to match any single character, including slashes and periods. • [*x*-*y*] to match any single character in the range of *x* and *y*, where *x* represents one character and *y* represents another character in the ANSI character set. • [**!***x*-*y*] to match any single character that is not in the range.
username	(Optional) Enter this keyword to accompany each HTTP proxy request with a username to provide basic, proxy authentication.
username	Username to send to the proxy server with each HTTP request.

Defaults

By default, no HTTP proxy server is configured.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.0(2)	Added the **exclude**, **username**, and **password** keywords.

Usage Guidelines

Requiring Internet access via a server that the organization controls provides another opportunity for filtering to assure secure Internet access and administrative control.

The ASA supports only one instance of the **http-proxy** command. If one instance of this command is already present in the running configuration and you enter another instance, the CLI overwrites the previous instance. The CLI lists any **http-proxy** commands in the running configuration if you enter the **show running-config webvpn** command. If the response does not list an **http -proxy** command, then none is present.

Note Proxy NTLM authentication is not supported in **http-proxy**. Only proxy without authentication and basic authentication are supported.

Examples

The following example shows how to configure use of an HTTP proxy server with an IP address of 209.165. 201.2 using the default port, 443:

```
hostname(config)# webvpn
hostname(config-webvpn)# http-proxy 209.165.201.2
hostname(config-webvpn)
```

The following example shows how to configure use of the same proxy server, and send a username and password with each HTTP request:

```
hostname(config-webvpn)# http-proxy 209.165.201.2 jsmith password mysecretdonttell
hostname(config-webvpn)
```

The following example shows the same command, except when the ASA receives the specific URL www.example.com in an HTTP request, it resolves the request instead of passing it on to the proxy server:

```
hostname(config-webvpn)# http-proxy 209.165.201.2 exclude www.example.com username jsmith
password mysecretdonttell
hostname(config-webvpn)
```

The followiing example shows how to use the **exclude** option:

```
hostname(config-webvpn)# http-proxy 10.1.1.1 port 8080 exclude *.com username John pasword
12345678
hostname(config-webvpn)
```

The followiing example shows how to use the **pac** option:

```
hostname(config-webvpn)# http-proxy pac http://10.1.1.1/pac.js
hostname(config-webvpn)
```

Related Commands

Command	Description
https-proxy	Configures the use of an external proxy server to handle HTTPS requests.
show running-config webvpn	Displays the running configuration for SSL VPN, including any HTTP and HTTPS proxy servers.

http-proxy (dap)

To enable or disable HTTP proxy port forwarding, use the **http-proxy** command in dap-webvpn configuration mode.To remove the attribute from the configuration, use the **no** form of this command.

http-proxy {**enable** | **disable** | **auto-start**}

no http-proxy

Syntax Description

auto-start	Enables and automatically starts HTTP proxy port forwarding for the DAP record.
enable/disable	Enables or disables HTTP proxy port forwarding for the DAP record.

Defaults

No default value or behaviors.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Dap-webvpn configuration	•	•	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

The ASA can apply attribute values from a variety of sources. It applies them according to the following hierarchy:

1. DAP record
2. Username
3. Group policy
4. Group policy for the tunnel group
5. Default group policy

It follows that DAP values for an attribute have a higher priority than those configured for a user, group policy, or tunnel group.

When you enable or disable an attribute for a DAP record, the ASA applies that value and enforces it. For example, when you disable HTTP proxy in dap-webvpn configuration mode, the ASA looks no further for a value. When you instead use the **no** value for the **http-proxy** command, the attribute is not present in the DAP record, so the ASA moves down to the AAA attribute in the username, and if necessary, the group policy to find a value to apply.

Examples

The following example shows how to enable HTTP proxy port forwarding for the DAP record named Finance.

```
hostname (config)# dynamic-access-policy-record Finance
hostname(config-dynamic-access-policy-record)# webvpn
hostname(config-dap-webvpn)# http-proxy enable
hostname(config-dap-webvpn)#
```

Related Commands

Command	Description
dynamic-access-policy-record	Creates a DAP record.
show running-config dynamic-access-policy-record	Displays the running configuration for all DAP records, or for the named DAP record.

http redirect

To specify that the ASA redirect HTTP connections to HTTPS, use the **http redirect** command in global configuration mode. To remove a specified **http redirect** command from the configuration, use the **no** form of this command. To remove all **http redirect** commands from the configuration, use the **no** form of this command without arguments.

http redirect *interface* [*port*]

no http redirect [*interface*]

Syntax Description

interface	Identifies the interface for which the ASA should redirect HTTP requests to HTTPS.
port	Identifies the port that the ASA listens on for HTTP requests, which it then redirects to HTTPS. By default, it listens on port 80,

Defaults

HTTP redirect is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The interface requires an access list that permits HTTP. Otherwise the ASA does not listen to port 80, or to any other port that you configure for HTTP.

If the **http redirect** command fails, the following message appears:

```
"TCP port <port_number> on interface <interface_name> is in use by another feature. Please
choose a different port for the HTTP redirect service"
```

Use a different port for the HTTP redirect service.

Examples

The following example shows how to configure HTTP redirect for the inside interface, keeping the default port 80:

```
hostname(config)# http redirect inside
```

Related Commands

Command	Description
clear configure http	Removes the HTTP configuration: disables the HTTP server and removes hosts that can access the HTTP server.
http	Specifies hosts that can access the HTTP server by IP address and subnet mask. Specifies the ASA interface through which the host accesses the HTTP server.
http authentication-certificate	Requires authentication via certificate from users who are establishing HTTPS connections to the ASA.
http server enable	Enables the HTTP server.
show running-config http	Displays the hosts that can access the HTTP server, and whether or not the HTTP server is enabled.

http server enable

To enable the ASA HTTP server, use the **http server enable** command in global configuration mode. To disable the HTTP server, use the **no** form of this command.

http server enable [*port*]

Syntax Description

port	The port to use for HTTP connections. The range is 1-65535. The default port is 443.

Defaults

The HTTP server is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to enable the HTTP server.

```
hostname(config)# http server enable
```

Related Commands

Command	Description
clear configure http	Removes the HTTP configuration: disables the HTTP server and removes hosts that can access the HTTP server.
http	Specifies hosts that can access the HTTP server by IP address and subnet mask. Specifies the ASA interface through which the host accesses the HTTP server.
http authentication-certificate	Requires authentication via certificate from users who are establishing HTTPS connections to the ASA.
http redirect	Specifies that the ASA redirect HTTP connections to HTTPS.
show running-config http	Displays the hosts that can access the HTTP server, and whether or not the HTTP server is enabled.

http server idle-timeout

To set an idle timeout for ASDM connections to the ASA, use the **http server idle-timeout** command in global configuration mode. To disable the timeout, use the **no** form of this command.

http server idle-timeout [*minutes*]

no http server idle-timeout [*minutes*]

Syntax Description

minutes	The idle timeout, from 1-1440 minutes.

Defaults

The default setting is 20 minutes.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Examples

The following example sets the idle timeout for ASDM sessions to 500 minutes:

```
hostname(config)# http server idle-timeout 500
```

Related Commands

Command	Description
clear configure http	Removes the HTTP configuration, disables the HTTP server, and removes hosts that can access the HTTP server.
http	Specifies hosts that can access the HTTP server by IP address and subnet mask and the interface through which the host accesses the HTTP server.
http authentication-certificate	Requires authentication via certificate from users who are establishing HTTPS connections to the ASA.
http server enable	Enables the HTTP server for ASDM sessions.
http server session-timeout	Limits the session time of ASDM sessions to the ASA.
http redirect	Specifies that the ASA redirect HTTP connections to HTTPS.
show running-config http	Displays the hosts that can access the HTTP server, and whether or not the HTTP server is enabled.

http server session-timeout

To set a session timeout for ASDM connections to the ASA, use the **http server session-timeout** command in global configuration mode. To disable the timeout, use the **no** form of this command.

http server session-timeout [*minutes*]

no http server session-timeout [*minutes*]

Syntax Description

minutes	The session timeout, from 1-1440 minutes.

Defaults

The session timeout is disabled. ASDM connections have no session time limit.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Examples

The following example sets a session timeout for ASDM connections to 1000 minutes:

```
hostname(config)# http server session-timeout 1000
```

Related Commands

Command	Description
clear configure http	Removes the HTTP configuration: disables the HTTP server and removes hosts that can access the HTTP server.
http	Specifies hosts that can access the HTTP server by IP address and subnet mask and the interface through which the host accesses the HTTP server.
http authentication-certificate	Requires authentication via certificate from users who are establishing HTTPS connections to the ASA.
http server enable	Enables the HTTP server for ASDM sessions.
http server idle-timeout	Limits the idle time of ASDM sessions to the ASA.
http redirect	Specifies that the ASA redirect HTTP connections to HTTPS.
show running-config http	Displays the hosts that can access the HTTP server, and whether or not the HTTP server is enabled.

https-proxy

To configure the ASA to use an external proxy server to handle HTTPS requests, use the **https-proxy** command in webvpn configuration mode. To remove the HTTPS proxy server from the configuration, use the **no** form of this command.

https-proxy {*host* [*port*] [**exclude** `url`] | [**username** *username* {**password** *password*}]

no https-proxy

Syntax Description

host	Hostname or IP address for the external HTTPS proxy server.
password	(Optional, and available only if you specify a username) Enter this keyword to accompany each HTTPS proxy request with a password to provide basic, proxy authentication.
password	Password to send to the proxy server with each HTTPS request.
port	(Optional) Port number used by the HTTPS proxy server. The default port is 443, which is the port the ASA uses if you do not supply a value. The range is 1-65535.
url	Enter a URL or a comma-delimited list of several URLs to exclude from those that can be sent to the proxy server. The string does not have a character limit, but the entire command cannot exceed 512 characters. You can specify literal URLs or use the following wildcards: • ***** to match any string, including slashes (/) and periods (.). You must accompany this wildcard with an alphanumeric string. • **?** to match any single character, including slashes and periods. • [*x*-*y*] to match any single character in the range of *x* and *y*, where *x* represents one character and *y* represents another character in the ANSI character set. • [**!***x*-*y*] to match any single character that is not in the range.
username	(Optional) Enter this keyword to accompany each HTTPS proxy request with a username to provide basic, proxy authentication.
username	Username to send to the proxy server with each HTTPS request.

Defaults

By default, no HTTPS proxy server is configured.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.0(2)	Added the **exclude**, **username**, and **password** keywords.

Usage Guidelines

Requiring Internet access via a server that the organization controls provides another opportunity for filtering to assure secure Internet access and administrative control.

The ASA supports only one instance of the **https-proxy** command. If one instance of this command is already present in the running configuration and you enter another instance, the CLI overwrites the previous instance. The CLI lists any **https-proxy** commands in the running configuration if you enter the **show running-config webvpn** command. If the response does not list an **https-proxy** command, then none is present.

Examples

The following example shows how to configure use of an HTTPS proxy server with an IP address of 209.165. 201.2 using the default port, 443:

```
hostname(config)# webvpn
hostname(config-webvpn)# https-proxy 209.165.201.2
hostname(config-webvpn)
```

The following example shows how to configure use of the same proxy server, and send a username and password with each HTTPS request:

```
hostname(config-webvpn)# https-proxy 209.165.201.2 jsmith password mysecretdonttell
hostname(config-webvpn)
```

The following example shows the same command, except that when the ASA receives the specific URL www.example.com in an HTTPS request, it resolves the request instead of passing it on to the proxy server:

```
hostname(config-webvpn)# https-proxy 209.165.201.2 exclude www.example.com username jsmith
password mysecretdonttell
hostname(config-webvpn)
```

The followiing example shows how to use the **exclude** option:

```
hostname(config-webvpn)# https-proxy 10.1.1.1 port 8080 exclude *.com username John
pasword 12345678
hostname(config-webvpn)
```

The followiing example shows how to use the **pac** option:

```
hostname(config-webvpn)# https-proxy pac http://10.1.1.1/pac.js
hostname(config-webvpn)
```

Related Commands

Command	Description
http-proxy	Configures the use of an external proxy server to handle HTTP requests.
show running-config webvpn	Displays the running configuration for SSL VPN, including any HTTP and HTTPS proxy servers.

hw-module module allow-ip

For the AIP SSC on the ASA 5505, to set the hosts that are allowed to access the management IP address, use the **hw-module module allow-ip** command in privileged EXEC mode.

hw-module module 1 allow-ip *ip_address netmask*

Syntax Description

1	Specifies the slot number, which is always 1.
ip_ address	Specifies the host IP address(es).
netmask	Specifies the subnet mask.

Defaults

In the factory default configuration, the following hosts are allowed to manage the IPS module: 192.168.1.5 through 192.168.1.254.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	—	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

This command is only valid when the SSC status is Up.

These settings are written to the IPS application configuration, not the ASA configuration. You can view these settings from the ASA using the **show module details** command.

You can alternatively use the IPS application **setup** command to configure this setting from the IPS CLI.

Examples

The following example shows how to configure host parameters on the SSC:

```
hostname# hw-module module 1 allow-ip 209.165.201.29 255.255.255.0
```

Related Commands

Command	Description
hw-module module ip	Configures the AIP SSC management address.
show module	Shows module status information.

hw-module module ip

For the AIP SSC on the ASA 5505, to configure the management IP address, use the **hw-module module ip** command in privileged EXEC mode.

hw-module module 1 ip *ip_address netmask gateway*

Syntax Description

1	Specifies the slot number, which is always 1.
gateway	Specifies the gateway IP address.
ip_address	Specifies the management IP address.
netmask	Specifies the subnet mask.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	—	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

Make sure this address is on the same subnet as the ASA VLAN IP address. For example, if you assigned 10.1.1.1 to the VLAN for the ASA, then assign another address on that network, such as 10.1.1.2, for the IPS management address.

If the management station is on a directly connected ASA network, then set the gateway to be the ASA IP address assigned to the IPS management VLAN. In the example decribed, set the gateway to 10.1.1.1. If the management station is on a remote network, then set the gateway to be the address of an upstream router on the IPS management VLAN.

Note These settings are written to the IPS application configuration, not the ASA configuration. You can view these settings from the ASA using the **show module details** command.

You can alternatively use the IPS application **setup** command to configure this setting from the IPS CLI.

Examples

The following example shows how to configure a management address for the IPS module:

```
hostname# hw-module module 1 ip 209.165.200.254 255.255.255.224 209.165.200.225
```

Related Commands

Command	Description
hw-module module allow-ip	Configures the AIP SSC management host addresses.
show module	Shows module status information.

hw-module module password-reset

To reset the password for the default admin user on the hardware module to the default value, use the **hw-module module password-reset** command in privileged EXEC mode.

hw-module module 1 password-reset

Syntax Description

1	Specifies the slot number, which is always 1.

Defaults

The default username and password depends on your module:

- IPS module—username: **cisco**; password: **cisco**
- CSC module—username: **cisco**; password: **cisco**
- ASA CX module—username: **admin**; password: **Admin123**

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.2(2)	This command was introduced.
8.4(4.1)	We added support for the ASA CX module.

Usage Guidelines

This command is only valid when the hardware module is in the Up state and supports password reset. For IPS, password reset is supported if the module is running IPS Version 6.0 or later. After resetting the password, you should change it to a unique value using the module application. Resetting the module password causes the module to reboot. Services are not available while the module is rebooting, which may take several minutes. You can run the **show module** command to monitor the module state.

The command always prompts for confirmation. If the command succeeds, no other output appears. If the command fails, an error message appears that explains why the failure occurred. The possible error messages are as follows:

```
Unable to reset the password on the module in slot 1

Unable to reset the password on the module in slot 1 - unknown module state

Unable to reset the password on the module in slot 1 - no module installed

Failed to reset the password on the module in slot 1 - module not in Up state

Unable to reset the password on the module in slot 1 - unknown module type

The module in slot 1 does not support password reset

Unable to reset the password on the module in slot 1 - no application found

The SSM application version does not support password reset

Failed to reset the password on the module in slot 1
```

Examples

The following example resets a password on a hardware module in slot 1:

```
hostname(config)# hw-module module 1 password-reset
Reset the password on module in slot 1? [confirm] y
```

Related Commands

Command	Description
hw-module module recover	Recovers a module by loading a recovery image from a TFTP server.
hw-module module reload	Reloads the module software.
hw-module module reset	Shuts down and resets the module hardware.
hw-module module shutdown	Shuts down the module software in preparation for being powered off without losing configuration data.
show module	Shows module information.

hw-module module recover

To load a recovery software image from a TFTP server to an installed module, or to configure network settings to access the TFTP server, use the **hw-module module recover** command in privileged EXEC mode. You might need to recover a module using this command if, for example, the module is unable to load a local image.

hw-module module 1 recover {**boot** | **stop** | **configure** [**url** *tfp_url* | **ip** *module_address* | **gateway** *gateway_ip_address* | **vlan** *vlan_id*]}

Syntax Description

1	Specifies the slot number, which is always 1.
boot	Initiates recovery of this module and downloads a recovery image according to the **configure** keyword settings. The module then reboots from the new image.
configure	Configures the network parameters to download a recovery image. If you do not enter a network parameter after the **configure** keyword, you are prompted for all parameters. This command prompts you for the URL for the TFTP server, the management interface IP address and netmask, gateway address, and VLAN ID. These network parameters are configured in ROMMON; the network parameters you configured in the module application configuration are not available to ROMMON, so you must set them separately here.
gateway *gateway_ip_address*	(Optional) The gateway IP address for access to the TFTP server through the SSM management interface.
ip *module_address*	(Optional) The IP address of the module management interface.
stop	Stops the recovery action, and stops downloading the recovery image. The module boots from the original image. You must enter this command within 30 to 45 seconds after starting recovery using the **hw-module module recover boot** command. If you issue the **stop** command after this period, it might cause unexpected results, such as the module becoming unresponsive.
url *tfp_url*	(Optional) The URL for the image on a TFTP server, in the following format: **tftp://***server*/[*path*/]*filename*
vlan *vlan_id*	(Optional) Specifies the VLAN ID for the management interface.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

If the module suffers a failure, and the module application image cannot run, you can reinstall a new image on the module from a TFTP server.

Note Do not use the **upgrade** command within the module software to install the image.

Be sure the TFTP server that you specify can transfer files up to 60 MB in size. This process can take approximately 15 minutes to complete, depending on your network and the size of the image.

This command is only available when the module is in the Up, Down, Unresponsive, or Recovery state. See the **show module** command for state information.

You can view the recovery configuration using the **show module 1 recover** command.

Note This command is not supported on the ASA CX module.

Examples

The following example sets the module to download an image from a TFTP server:

```
hostname# hw-module module 1 recover configure
Image URL [tftp://127.0.0.1/myimage]: tftp://10.1.1.1/ids-newimg
Port IP Address [127.0.0.2]: 10.1.2.10
Port Mask [255.255.255.254]: 255.255.255.0
Gateway IP Address [1.1.2.10]: 10.1.2.254
VLAN ID [0]: 100
```

The following example recovers the module:

```
hostname# hw-module module 1 recover boot
The module in slot 1 will be recovered.  This may
erase all configuration and all data on that device and
attempt to download a new image for it.
Recover module in slot 1? [confirm]
```

Related Commands

Command	Description
debug module-boot	Shows debug messages about the module booting process.
hw-module module reset	Shuts down a module and performs a hardware reset.
hw-module module reload	Reloads the module software.
hw-module module shutdown	Shuts down the module software in preparation for being powered off without losing configuration data.
show module	Shows module information.

hw-module module reload

To reload module software for a physical module, use the **hw-module module reload** command in privileged EXEC mode.

hw-module module 1 reload

Syntax Description

1	Specifies the slot number, which is always 1.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.
8.4(4.1)	We added support for the ASA CX module.

Usage Guidelines

This command differs from the **hw-module module reset** command, which also performs a hardware reset before reloading the module.

This command is only valid when the module status is Up. See the **show module** command for state information.

Examples

The following example reloads the module in slot 1:

```
hostname# hw-module module 1 reload
Reload module in slot 1? [confirm] y
Reload issued for module in slot 1
%XXX-5-505002: Module in slot 1 is reloading.  Please wait...
%XXX-5-505006: Module in slot 1 is Up.
```

Related Commands

Command	Description
debug module-boot	Shows debugging messages about the module booting process.
hw-module module recover	Recovers a module by loading a recovery image from a TFTP server.
hw-module module reset	Shuts down a module and performs a hardware reset.
hw-module module shutdown	Shuts down the module software in preparation for being powered off without losing configuration data.
show module	Shows module information.

hw-module module reset

To reset the module hardware and then reload the module software, use the **hw-module module reset** command in privileged EXEC mode.

hw-module module 1 reset

Syntax Description

1	Specifies the slot number, which is always 1.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.
8.4(4.1)	We added support for the ASA CX module.

Usage Guidelines

When the module is in an Up state, the **hw-module module reset** command prompts you to shut down the software before resetting.

You can recover a module (if supported) using the **hw-module module recover** command. If you enter the **hw-module module reset** command while the module is in a Recover state, the module does not interrupt the recovery process. The **hw-module module reset** command performs a hardware reset of the module, and the module recovery continues after the hardware reset. You might want to reset the module during recovery if the module hangs; a hardware reset might resolve the issue.

This command differs from the **hw-module module reload** command, which only reloads the software and does not perform a hardware reset.

This command is only valid when the module status is Up, Down, Unresponsive, or Recover. See the **show module** command for state information.

Examples

The following example resets an module in slot 1 that is in the Up state:

```
hostname# hw-module module 1 reset
The module in slot 1 should be shut down before
resetting it or loss of configuration may occur.
Reset module in slot 1? [confirm] y
Reset issued for module in slot 1
%XXX-5-505001: Module in slot 1 is shutting down.  Please wait...
```

```
%XXX-5-505004: Module in slot 1 shutdown is complete.
%XXX-5-505003: Module in slot 1 is resetting.  Please wait...
%XXX-5-505006: Module in slot 1 is Up.
```

Related Commands

Command	Description
debug module-boot	Shows debugging messages about the module booting process.
hw-module module recover	Recovers a module by loading a recovery image from a TFTP server.
hw-module module reload	Reloads the module software.
hw-module module shutdown	Shuts down the module software in preparation for being powered off without losing configuration data.
show module	Shows module information.

hw-module module shutdown

To shut down the module software, use the **hw-module module shutdown** command in privileged EXEC mode.

hw-module module 1 shutdown

Syntax Description

1	Specifies the slot number, which is always 1.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.
8.4(4.1)	We added support for the ASA CX module.

Usage Guidelines

Shutting down the module software prepares the module to be safely powered off without losing configuration data.

This command is only valid when the module status is Up or Unresponsive. See the **show module** command for state information.

Examples

The following example shuts down a module in slot 1:

```
hostname# hw-module module 1 shutdown
Shutdown module in slot 1? [confirm] y
Shutdown issued for module in slot 1
hostname#
%XXX-5-505001: Module in slot 1 is shutting down.  Please wait...
%XXX-5-505004: Module in slot 1 shutdown is complete.
```

Related Commands

Command	Description
debug module-boot	Shows debugging messages about the module booting process.
hw-module module recover	Recovers a module by loading a recovery image from a TFTP server.
hw-module module reload	Reloads the module software.
hw-module module reset	Shuts down a module and performs a hardware reset.
show module	Shows module information.

icmp through import webvpn webcontent Commands

icmp

To configure access rules for ICMP traffic that terminates at an ASA interface, use the **icmp** command. To remove the configuration, use the **no** form of this command.

icmp {**permit** | **deny**} *ip_address net_mask* [*icmp_type*] *if_name*

no icmp {**permit** | **deny**} *ip_address net_mask* [*icmp_type*] *if_name*

Syntax Description

deny	Deny access if the conditions are matched.
icmp_type	(Optional) ICMP message type (see Table 24-1).
if_name	The interface name.
ip_address	The IP address of the host sending ICMP messages to the interface.
net_mask	The network mask to be applied to the IP address of the host.
permit	Permit access if the conditions are matched.

Defaults

The default behavior of the ASA is to allow all ICMP traffic to the ASA interfaces.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **icmp** command controls ICMP traffic that terminates on any ASA interface. If no ICMP control list is configured, then the ASA accepts all ICMP traffic that terminates at any interface, including the outside interface. However, by default, the ASA does not respond to ICMP echo requests directed to a broadcast address.

The ASA only responds to ICMP traffic sent to the interface that traffic comes in on; you cannot send ICMP traffic through an interface to a far interface.

The **icmp deny** command disables pinging to an interface, and the **icmp permit** command enables pinging to an interface. With pinging disabled, the ASA cannot be detected on the network. This is also referred to as configurable proxy pinging.

Use the **access-list extended** or **access-group** command for ICMP traffic that is routed through the ASA for destinations on a protected interface.

We recommend that you grant permission for the ICMP unreachable message type (type 3). Denying ICMP unreachable messages disables ICMP path MTU discovery, which can halt IPsec and PPTP traffic. See RFC 1195 and RFC 1435 for details about path MTU discovery.

If an ICMP control list is configured for an interface, then the ASA first matches the specified ICMP traffic and then applies an implicit deny for all other ICMP traffic on that interface. That is, if the first matched entry is a permit entry, the ICMP packet continues to be processed. If the first matched entry is a deny entry or an entry is not matched, the ASA discards the ICMP packet and generates a syslog message. An exception is when an ICMP control list is not configured; in that case, a permit statement is assumed.

Table 24-1 lists the supported ICMP type values.

Table 24-1 ICMP Types and Literals

ICMP Type	Literal
0	echo-reply
3	unreachable
8	echo
11	time-exceeded

Examples

The following example denies all ping requests and permits all unreachable messages at the outside interface:

```
hostname(config)# icmp permit any unreachable outside
```

Continue entering the **icmp deny any** *interface* command for each additional interface on which you want to deny ICMP traffic.

The following example permits host 172.16.2.15 or hosts on subnet 172.22.1.0/16 to ping the outside interface:

```
hostname(config)# icmp permit host 172.16.2.15 echo-reply outside
hostname(config)# icmp permit 172.22.1.0 255.255.0.0 echo-reply outside
hostname(config)# icmp permit any unreachable outside
```

Related Commands

Commands	Description
clear configure icmp	Clears the ICMP configuration.
debug icmp	Enables the display of debug information for ICMP.
show icmp	Displays ICMP configuration.
timeout icmp	Configures the idle timeout for ICMP.

icmp unreachable

To configure the unreachable ICMP message rate limit for ICMP traffic that terminates at an ASA interface, use the **icmp unreachable** command. To remove the configuration, use the **no** form of this command.

icmp unreachable rate-limit *rate* **burst-size** *size*

no icmp unreachable rate-limit *rate* **burst-size** *size*

Syntax Description

rate-limit *rate*	Sets the rate limit of unreachable messages, between 1 and 100 messages per second. The default is 1 message per second.
burst-size *size*	Sets the burst rate, between 1 and 10. This keyword is not currently used by the system, so you can choose any value.

Defaults

The default rate limit is 1 message per second.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.2(2)	This command was introduced.

Usage Guidelines

If you allow ICMP messages, including unreachable messages, to terminate on an ASA interface (see the **icmp** command), then you can control the rate of unreachable messages.

This command, along with the **set connection decrement-ttl** command, is required to allow a traceroute through the ASA that shows the ASA as one of the hops.

Examples

The following example enables time to live decrements and sets the ICMP unreachable rate limit:

```
hostname(config)# policy-map localpolicy1
hostname(config-pmap)# class local_server
hostname(config-pmap-c)# set connection decrement-ttl
hostname(config-pmap-c)# exit
hostname(config)# icmp permit host 172.16.2.15 echo-reply outside
hostname(config)# icmp permit 172.22.1.0 255.255.0.0 echo-reply outside
hostname(config)# icmp permit any unreachable outside
hostname(config)# icmp unreachable rate-limit 50 burst-size 1
```

Related Commands

Commands	Description
clear configure icmp	Clears the ICMP configuration.
debug icmp	Enables the display of debug information for ICMP.
set connection decrement-ttl	Decrements the time to live value for a packet.
show icmp	Displays ICMP configuration.
timeout icmp	Configures the idle timeout for ICMP.

icmp-object

To add icmp-type object groups, use the **icmp-object** command in icmp-type configuration mode. To remove network object groups, use the **no** form of this command.

icmp-object *icmp_type*

no group-object *icmp_type*

Syntax Description

icmp_type	Specifies an ICMP type name.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Icmp-type configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **icmp-object** command is used with the **object-group** command to define an icmp-type object. It is used in icmp-type configuration mode.

ICMP type numbers and names include:

Number	ICMP Type Name
0	**echo-reply**
3	**unreachable**
4	**source-quench**
5	**redirect**
6	**alternate-address**
8	**echo**
9	**router-advertisement**
10	**router-solicitation**
11	**time-exceeded**
12	**parameter-problem**

Number	ICMP Type Name
13	**timestamp-request**
14	**timestamp-reply**
15	**information-request**
16	**information-reply**
17	**address-mask-request**
18	**address-mask-reply**
31	**conversion-error**
32	**mobile-redirect**

Examples

The following example shows how to use the **icmp-object** command in icmp-type configuration mode:

```
hostname(config)# object-group icmp-type icmp_allowed
hostname(config-icmp-type)# icmp-object echo
hostname(config-icmp-type)# icmp-object time-exceeded
hostname(config-icmp-type)# exit
```

Related Commands

Command	Description
clear configure object-group	Removes all the **object-group** commands from the configuration.
network-object	Adds a network object to a network object group.
object-group	Defines object groups to optimize your configuration.
port-object	Adds a port object to a service object group.
show running-config object-group	Displays the current object groups.

id-cert-issuer

To indicate whether the system accepts peer certificates issued by the CA associated with this trustpoint, use the **id-cert-issuer** command in crypto ca-trustpoint configuration mode. To disallow certificates that were issued by the CA associated with the trustpoint, use the **no** form of this command. This is useful for trustpoints that represent widely used root CAs.

id-cert-issuer

no id-cert-issuer

Syntax Description

This command has no arguments or keywords.

Defaults

The default setting is enabled (identity certificates are accepted).

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Crypto ca-trustpoint configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Use this command to limit certificate acceptance to those issued by the subordinate certificate of a widely used root certificate. If you do not allow this feature, the ASA rejects any IKE peer certificate signed by this issuer.

Examples

The following example enters crypto ca trustpoint configuration mode for the trustpoint central, and lets an administrator accept identity certificates signed by the issuer for the trustpoint central:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# id-cert-issuer
hostname(ca-trustpoint)#
```

Related Commands

Command	Description
crypto ca trustpoint	Enters crypto ca trustpoint configuration mode.
default enrollment	Returns enrollment parameters to their defaults.
enrollment retry count	Specifies the number of retries to attempt to send an enrollment request.

Command	Description
enrollment retry period	Specifies the number of minutes to wait before trying to send an enrollment request.
enrollment terminal	Specifies cut-and-paste enrollment with this trustpoint.

id-mismatch

To enable logging for excessive DNS ID mismatches, use the **id-mismatch** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

id-mismatch [**count** *number* **duration** *seconds*] **action log**

no id-mismatch [**count** *number* **duration** *seconds*] **action log**]

Syntax Description

count *number*	The maximum number of mismatch instances before a system message log is sent.
duration *seconds*	The period, in seconds, to monitor.

Defaults

This command is disabled by default. The default rate is 30 in the a period of 3 seconds if the options are not specified when the command is enabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

A high rate of DNS ID mismatches may indicate a cache poisoning attack. This command can be enabled to monitor and alert such attempts. A summarized system message log will be printed if the mismatch rate exceeds the configured value. The **id-mismatch** command provides the system administrator with additional information to the regular event-based system message log.

Examples

The following example shows how to enable ID mismatch in a DNS inspection policy map:

```
hostname(config)# policy-map type inspect dns preset_dns_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# id-mismatch action log
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

id-randomization

To randomize the DNS identifier for a DNS query, use the **id-randomization** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

id-randomization

no id-randomization

Syntax Description

This command has no arguments or keywords.

Defaults

Disabled by default. The DNS identifier from the DNS query does not get modified.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

ID randomization helps protect against cache poisening attacks.

Examples

The following example shows how to enable ID randomization in a DNS inspection policy map:

```
hostname(config)# policy-map type inspect dns preset_dns_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# id-randomization
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

id-usage

To specify how the enrolled identity of a certificate can be used, use the **id-usage** command in crypto ca trustpoint configuration mode. To set the usage of the certificate to the default, use the **no** form of this command.

id-usage {**ssl-ipsec** | **code-signer**}

no id-usage {**ssl-ipsec** | **code-signer**}

Syntax Description

code-signer	The device identity represented by this certificate is used as a Java code signer to verify applets provided to remote users.
ssl-ipsec	(Default) The device identity represented by this certificate can be used as the server-side identity for SSL or IPsec-encrypted connections.

Defaults

The **id-usage** command default is **ssl-ipsec**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Crypto ca trustpoint configuration	•	•	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Remote-access VPNs can use SSL, IPsec, or both protocols, depending on deployment requirements, to permit access to virtually any network application or resource. The **id-usage** command allows you to specify the type of access to various certificate-protected resources.

A CA identity and in some cases, a device identity, is based on a certificate issued by the CA. All of the commands within the crypto ca trustpoint configuration mode control CA-specific configuration parameters, which specify how the ASA obtains the CA certificate, how the ASA obtains its certificate from the CA, and the authentication policies for user certificates issued by the CA.

Only a single instance of the **id-usage** command can be present in a trustpoint configuration. To enable the trustpoint for the **code-signer** and/or **ssl-ipsec** options, use a single instance which can specify either or both options.

Examples

The following example enters crypto ca trustpoint configuration mode for the trustpoint central, and designates it as a code-signer certificate:

```
hostname(config)# crypto ca trustpoint central
hostname(config-ca-trustpoint)# id-usage code-signer
hostname(config-ca-trustpoint)#
```

The following example enters crypto ca trustpoint configuration mode for the trustpoint general, and designates it as both a code-signer certificate and as a server side identity for SSL or IPsec connections:

```
hostname(config)# crypto ca trustpoint central
hostname(config-ca-trustpoint)# id-usage code-signer ssl-ipsec
hostname(config-ca-trustpoint)#
```

The following example enters crypto ca trustpoint configuration mode for the trustpoint checkin1, and resets it to limit its use to SSL or IPsec connections:

```
hostname(config)# crypto ca trustpoint checkin1
hostname(config-ca-trustpoint)# no id-usage ssl-ipsec
hostname(config-ca-trustpoint)#
```

Related Commands

Command	Description
crypto ca trustpoint	Enters crypto ca trustpoint configuration mode.
java-trustpoint	Configures the WebVPN Java object signing facility to use a PKCS12 certificate and keying material from a specified trustpoint location.
ssl trust-point	Specifies the certificate that represents the SSL certificate for an interface.
trust-point (tunnel-group ipsec-attributes mode)	Specifies the name that identifies the certificate to be sent to the IKE peer,
validation-policy	Specifies conditions for validating certificates associated with user connections.

igmp

To reinstate IGMP processing on an interface, use the **igmp** command in interface configuration mode. To disable IGMP processing on an interface, use the **no** form of this command.

igmp

no igmp

Syntax Description

This command has no arguments or keywords.

Defaults

Enabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Only the **no** form of this command appears in the running configuration.

Examples

The following example disables IGMP processing on the selected interface:

```
hostname(config-if)# no igmp
```

Related Commands

Command	Description
show igmp groups	Displays the multicast groups with receivers that are directly connected to the ASA and that were learned through IGMP.
show igmp interface	Displays multicast information for an interface.

igmp access-group

To control the multicast groups that hosts on the subnet serviced by an interface can join, use the **igmp access-group** command in interface configuration mode. To disable groups on the interface, use the **no** form of this command.

igmp access-group *acl*

no igmp access-group *acl*

Syntax Description

acl	Name of an IP access list. You can specify a standard or and extended access list. However, if you specify an extended access list, only the destination address is matched; you should specify **any** for the source.

Defaults

All groups are allowed to join on an interface.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was moved to interface configuration mode. Earlier versions required you to enter multicast interface configuration mode, which is no longer available.

Examples

The following example limits hosts permitted by access list 1 to join the group:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# igmp access-group 1
```

Related Commands

Command	Description
show igmp interface	Displays multicast information for an interface.

igmp forward interface

To enable forwarding of all IGMP host reports and leave messages received to the interface specified, use the **igmp forward interface** command in interface configuration mode. To remove the forwarding, use the **no** form of this command.

igmp forward interface *if-name*

no igmp forward interface *if-name*

Syntax Description

if-name	Logical name of the interface.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was moved to interface configuration mode. Earlier versions required you to enter multicast interface configuration mode, which is no longer available.

Usage Guidelines

Enter this command on the input interface. This command is used for stub multicast routing and cannot be configured concurrently with PIM.

Examples

The following example forwards IGMP host reports from the current interface to the specified interface:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# igmp forward interface outside
```

Related Commands

Command	Description
show igmp interface	Displays multicast information for an interface.

igmp join-group

To configure an interface to be a locally connected member of the specified group, use the **igmp join-group** command in interface configuration mode. To cancel membership in the group, use the **no** form of this command.

igmp join-group *group-address*

no igmp join-group *group-address*

Syntax Description

group-address	IP address of the multicast group.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was moved to interface configuration mode. Earlier versions required you to enter multicast interface configuration mode, which is no longer available.

Usage Guidelines

This command configures an ASA interface to be a member of a multicast group. The **igmp join-group** command causes the ASA to both accept and forward multicast packets destined for the specified multicast group.

To configure the ASA to forward the multicast traffic without being a member of the multicast group, use the **igmp static-group** command.

Examples

The following example configures the selected interface to join the IGMP group 255.2.2.2:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# igmp join-group 225.2.2.2
```

Related Commands

Command	Description
igmp static-group	Configure the interface to be a statically connected member of the specified multicast group.

igmp limit

To limit the number of IGMP states on a per-interface basis, use the **igmp limit** command in interface configuration mode. To restore the default limit, use the **no** form of this command.

igmp limit *number*

no igmp limit [*number*]

Syntax Description

number	Number of IGMP states allowed on the interface. Valid values range from 0 to 500. The default value is 500. Setting this value to 0 prevents learned groups from being added, but manually defined memberships (using the **igmp join-group** and **igmp static-group** commands) are still permitted.

Defaults

The default is 500.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced. It replaced the **igmp max-groups** command.

Examples

The following example limits the number of IGMP states on the interface to 250:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# igmp limit 250
```

Related Commands

Command	Description
igmp	Reinstates IGMP processing on an interface.
igmp join-group	Configure an interface to be a locally connected member of the specified group.
igmp static-group	Configure the interface to be a statically connected member of the specified multicast group.

igmp query-interval

To configure the frequency at which IGMP host query messages are sent by the interface, use the **igmp query-interval** command in interface configuration mode. To restore the default frequency, use the **no** form of this command.

igmp query-interval *seconds*

no igmp query-interval *seconds*

Syntax Description

seconds	Frequency, in seconds, at which to send IGMP host query messages. Valid values range from 1 to 3600. The default is 125 seconds.

Defaults

The default query interval is 125 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was moved to interface configuration mode. Earlier versions required you to enter multicast interface configuration mode, which is no longer available.

Usage Guidelines

Multicast routers send host query messages to discover which multicast groups have members on the networks attached to the interface. Hosts respond with IGMP report messages indicating that they want to receive multicast packets for specific groups. Host query messages are addressed to the all-hosts multicast group, which has an address of 224.0.0.1 TTL value of 1.

The designated router for a LAN is the only router that sends IGMP host query messages:

- For IGMP Version 1, the designated router is elected according to the multicast routing protocol that runs on the LAN.
- For IGMP Version 2, the designated router is the lowest IP-addressed multicast router on the subnet.

If the router hears no queries for the timeout period (controlled by the **igmp query-timeout** command), it becomes the querier.

Caution Changing this value may severely impact multicast forwarding.

Examples

The following example changes the IGMP query interval to 120 seconds:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# igmp query-interval 120
```

Related Commands

Command	Description
igmp query-max-response-time	Configures the maximum response time advertised in IGMP queries.
igmp query-timeout	Configures the timeout period before the router takes over as the querier for the interface after the previous querier has stopped querying.

igmp query-max-response-time

To specify the maximum response time advertised in IGMP queries, use the **igmp query-max-response-time** command in interface configuration mode. To restore the default response time value, use the **no** form of this command.

igmp query-max-response-time *seconds*

no igmp query-max-response-time *seconds*

Syntax Description

seconds	Maximum response time, in seconds, advertised in IGMP queries. Valid values are from 1 to 25. The default value is 10 seconds.

Defaults

10 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was moved to interface configuration mode. Earlier versions required you to enter multicast interface configuration mode, which is no longer available.

Usage Guidelines

This command is valid only when IGMP Version 2 or 3 is running.

This command controls the period during which the responder can respond to an IGMP query message before the router deletes the group.

Examples

The following example changes the maximum query response time to 8 seconds:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# igmp query-max-response-time 8
```

Related Commands

Command	Description
igmp query-interval	Configures the frequency at which IGMP host query messages are sent by the interface.
igmp query-timeout	Configures the timeout period before the router takes over as the querier for the interface after the previous querier has stopped querying.

igmp query-timeout

To configure the timeout period before the interface takes over as the querier after the previous querier has stopped querying, use the **igmp query-timeout** command in interface configuration mode. To restore the default value, use the **no** form of this command.

igmp query-timeout *seconds*

no igmp query-timeout *seconds*

Syntax Description

seconds	Number of seconds that the router waits after the previous querier has stopped querying and before it takes over as the querier. Valid values are from 60 to 300 seconds. The default value is 255 seconds.

Defaults

The default query interval is 255 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command requires IGMP Version 2 or 3.

Examples

The following example configures the router to wait 200 seconds from the time it received the last query before it takes over as the querier for the interface:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# igmp query-timeout 200
```

Related Commands

Command	Description
igmp query-interval	Configures the frequency at which IGMP host query messages are sent by the interface.
igmp query-max-response-time	Configures the maximum response time advertised in IGMP queries.

igmp static-group

To configure the interface to be a statically connected member of the specified multicast group, use the **igmp static-group** command in interface configuration mode. To remove the static group entry, use the **no** form of this command.

igmp static-group *group*

no igmp static-group *group*

Syntax Description

group	IP multicast group address.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

When configured with the **igmp static-group** command, the ASA interface does not accept multicast packets destined for the specified group itself; it only forwards them. To configure the ASA to both accept and forward multicast packets for a speific multicast group, use the **igmp join-group** command. If the **igmp join-group** command is configured for the same group address as the **igmp static-group** command, the **igmp join-group** command takes precedence, and the group behaves like a locally joined group.

Examples

The following example adds the selected interface to the multicast group 239.100.100.101:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# igmp static-group 239.100.100.101
```

Related Commands

Command	Description
igmp join-group	Configures an interface to be a locally connected member of the specified group.

igmp version

To configure which version of IGMP the interface uses, use the **igmp version** command in interface configuration mode. To restore version to the default, use the **no** form of this command.

igmp version {**1** | **2**}

no igmp version [**1** | **2**]

Syntax Description

1	IGMP Version 1.
2	IGMP Version 2.

Defaults

IGMP Version 2.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was moved to interface configuration mode. Earlier versions required you to enter multicast interface configuration mode, which is no longer available.

Usage Guidelines

All routers on the subnet must support the same version of IGMP. Hosts can have any IGMP version (1 or 2), and the ASA will correctly detect their presence and query them appropriately.

Some commands require IGMP Version 2, including as the **igmp query-max-response-time** and **igmp query-timeout** commands.

Examples

The following example configures the selected interface to use IGMP Version 1:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# igmp version 1
```

Related Commands

Command	Description
igmp query-max-response-time	Configures the maximum response time advertised in IGMP queries.
igmp query-timeout	Configures the timeout period before the router takes over as the querier for the interface after the previous querier has stopped querying.

ignore-ipsec-keyusage

To suppress key usage checking on IPsec client certificates, use the **ignore-ipsec-keyusage** command in ca-trustpoint configuration mode. To resume key usage checking, use the **no** form of this command.

ignore-ipsec-keyusage

no ignore-ipsec-keyusage

Syntax Description

This command has no arguments or keywords.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ca-trustpoint configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced as a safety measure and was deprecated at the same time. Note that future releases might not offer suppression of key usage checking.

Usage Guidelines

Use of this command indicates that the values in the Key Usage and extended Key Usage extensions of IPsec remote client certificates are not to be validated. This command ignores key usage checking and is useful for noncompliant deployments.

Examples

The following example shows how to ignore the results of key usage checking:

```
hostname(config)# crypto ca trustpoint central
hostname(config-ca-trustpoint)#
hostname(config-ca-trustpoint)# ignore-ipsec-keyusage
Notice: This command has been deprecated
hostname(config-ca-trustpoint)#
```

Related Commands

Command	Description
crypto ca trustpoint	Enters crypto ca trustpoint configuration mode.

ignore lsa mospf

To suppress the sending of syslog messages when the router receives LSA Type 6 MOSPF packets, use the **ignore lsa mospf** command in router configuration mode. To restore the sending of the syslog messages, use the **no** form of this command.

ignore lsa mospf

no ignore lsa mospf

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Type 6 MOSPF packets are unsupported.

Examples

The following example causes LSA Type 6 MOSPF packets to be ignored:

```
hostname(config-router)# ignore lsa mospf
```

Related Commands

Command	Description
show running-config router ospf	Displays the OSPF router configuration.

ignore-ssl-keyusage

To suppress key usage checking on SSL client certificates, use the **ignore-ssl-keyusage** command in ca-trustpoint configuration mode. To resume key usage checking, use the **no** form of this command.

ignore-ssl-keyusage

no ignore-ssl-keyusage

Syntax Description

This command has no arguments or keywords.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ca-trustpoint configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced as a safety measure and was deprecated at the same time. Note that future releases might not offer suppression of key usage checking.

Usage Guidelines

Use of this command indicates that the values in the Key Usage and extended Key Usage extensions of IPsec remote client certificates are not to be validated. This command ignores key usage checking and is useful for noncompliant deployments.

Examples

The following example shows how to ignore the results of key usage checking:

```
hostname(config)# crypto ca trustpoint central
hostname(config-ca-trustpoint)#
hostname(config-ca-trustpoint)# ignore-ssl-keyusage
Notice: This command has been deprecated
hostname(config-ca-trustpoint)#
```

Related Commands

Command	Description
crypto ca trustpoint	Enters crypto ca trustpoint configuration mode.

ike-retry-count

To configure the maximum number of connection retry attempts a Cisco AnyConnect VPN Client using IKE should make before falling back to SSL to attempt the connection, use the **ike-retry-count** command in group-policy webvpn configuration mode or username webvpn configuration mode. To remove this command from the configuration and reset the maximum number of retry attempts to the default value, use the **no** form of this command.

ike-retry-count {**none** | *value*}

no ike-retry-count [**none** | *value*]

Syntax Description

none	Specifies that no retry attempts are allowed.
value	Specify the maximum number of connection retry atttempts (1-10) for the Cisco AnyConnect VPN Client to perform after an inital connection failure.

Defaults

The default number of allowed retry attempts is 3.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Group-policy webvpn configuration	•	—	•	—	—
Username webvpn configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced

Usage Guidelines

Use the **ike-retry-count** command to control the number of times that the Cisco AnyConnect VPN Client should attempt to connect using IKE. If the client fails to connect using IKE after the number of retries specified in this command, it falls back to SSL to attempt the connection. This value overrides any value that exists in the Cisco AnyConnect VPN Client.

Note To support fallback from IPsec to SSL, the **vpn-tunnel-protocol** command must be have with both the **svc** and **ipsec** arguments configured.

Examples

The following example sets the IKE retry count to 7 for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
```

```
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# ike-retry-count 7
hostname(config-group-webvpn)#
```

The following example sets the IKE retry count to 9 for the username Finance:

```
hostname(config)# username Finance attributes
hostname(config-username)# webvpn
hostname(config-username-webvpn)# ike-retry-count 9
hostname(config-group-webvpn)#
```

Related Commands

Command	Description
group-policy	Creates or edits a group policy.
ike-retry-timeout	Specifies the number of seconds between IKE retry attempts.
username	Adds a user to the ASA database.
vpn-tunnel-protocol	Configures a VPN tunnel type (IPsec, L2TP over IPsec, or WebVPN).
webvpn	Enters group-policy webvpn configuration mode or username webvpn configuration mode.

ikev1 pre-shared-key

To specify a preshared key to support IKEv1 connections based on preshared keys, use the **pre-shared-key** command in tunnel-group ipsec-attributes configuration mode. To return to the default value, use the **no** form of this command.

pre-shared-key *key*

no pre-shared-key

Syntax Description

key	Specifies an alphanumeric key between 1 and 128 characters.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tunnel-group ipsec-attributes configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.4(1)	The command name was modified from **pre-shared-key** to **ikev1 pre-shared-key**.

Usage Guidelines

You can apply this attribute to all IPsec tunnel-group types.

Examples

The following command entered in config-ipsec configuration mode, specifies the preshared key XYZX to support IKE connections for the IPSec LAN-to-LAN tunnel group named 209.165.200.225:

```
hostname(config)# tunnel-group 209.165.200.225 type IPSec_L2L
hostname(config)# tunnel-group 209.165.200.225 ipsec-attributes
hostname(config-tunnel-ipsec)# pre-shared-key xyzx
hostname(config-tunnel-ipsec)#
```

Related Commands

Command	Description
clear-configure tunnel-group	Clears all configured tunnel groups.
show running-config tunnel-group	Shows the tunnel group configuration for all tunnel groups or for a particular tunnel group.
tunnel-group ipsec-attributes	Configures the tunnel group IPsec attributes for this group.

ikev1 trust-point

To specify the name of a trustpoint that identifies the certificate to be sent to the IKEv1 peer, use the **trust-point** command in tunnel-group ipsec-attributes mode. To eliminate a trustpoint specification, use the **no** form of this command.

trust-point *trust-point-name*

no trust-point *trust-point-name*

Syntax Description

trust-point-name	Specifies the name of the trustpoint to use.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tunnel-group ipsec attributes	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.4(1)	The command name was changed from **trust-point** to **ikev1 trust-point**.

Usage Guidelines

You can apply this attribute to all IPsec tunnel group types.

Examples

The following example entered in tunnel-ipsec configuration mode, configures a trustpoint for identifying the certificate to be sent to the IKEv1 peer for the IPsec LAN-to-LAN tunnel group named 209.165.200.225:

```
hostname(config)# tunnel-group 209.165.200.225 type IPSec_L2L
hostname(config)# tunnel-group 209.165.200.225 ipsec-attributes
hostname(config-tunnel-ipsec)# ikev1 trust-point mytrustpoint
```

Related Commands

Command	Description
clear-configure tunnel-group	Clears all configured tunnel groups.

Command	Description
show running-config tunnel-group	Shows the tunnel group configuration for all tunnel groups or for a particular tunnel group.
tunnel-group ipsec-attributes	Configures the tunnel group IPsec attributes for this group.

ikev1 user-authentication

To configure hybrid authentication during IKE, use the **ikev1 user-authentication** command in tunnel-group ipsec-attributes configuration mode. To disable hybrid authentication, use the **no** form of this command.

ikev1 user-authentication [*interface*] {**none** | **xauth** | **hybrid**}

no ikev1 user-authentication [*interface*] {**none** | **xauth** | **hybrid**}

Syntax Description

hybrid	Specifies hybrid XAUTH authentication during IKE.
interface	(Optional) Specifies the interface on which the user authentication method is configured.
none	Disables user authentication during IKE.
xauth	Specifies XAUTH, also called extended user authentication.

Defaults

The default authentication method is XAUTH or extended user authentication. The default is all interfaces.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Tunnel-group ipsec-attributes configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.
8.4(1)	The command name was changed from **isakmp ikev1-user-authentication** to **ikev1 user-authentication**.

Usage Guidelines

You use this command when you need to use digital certificates for ASA authentication and a different, legacy method for remote VPN user authentication, such as RADIUS, TACACS+, or SecurID. This command breaks Phase 1 of IKE down into the following two steps, together called hybrid authentication:

1. The ASA authenticates to the remote VPN user with standard public key techniques. This establishes an IKE security association that is unidirectionally authenticated.
2. An XAUTH exchange then authenticates the remote VPN user. This extended authentication can use one of the supported legacy authentication methods.

Note Before the authentication type can be set to hybrid, you must configure the authentication server, create a preshared key, and configure a trustpoint.

An IPsec hybrid RSA authentication type is rejected when the exchange type is main mode.

When you omit the optional *interface* argument, the command applies to all the interfaces and serves as a backup when the per-interface command is not specified. When there are two **ikev1 user-authentication** commands specified for a tunnel group, and one uses the *interface* argument and one does not, the one specifying the interface takes precedence for that particular interface.

Examples

The following example commands enable hybrid XAUTH on the inside interface for a tunnel group called example-group:

```
hostname(config)# tunnel-group example-group type ipsec-ra
hostname(config)# tunnel-group example-group ipsec-attributes
hostname(config-tunnel-ipsec)# ikev1 user-authentication (inside) hybrid
hostname(config-tunnel-ipsec)#
```

Related Commands

Command	Description
aaa-server	Defines a AAA server.
pre-shared-key	Creates a preshared key for supporting IKE connections.
tunnel-group	Creates and manages the database of connection specific records for IPsec, L2TP/IPsec, and WebVPN connections.

ikev2 local-authentication

To specify local authentication for IKEv2 LAN-to-LAN connections, use the **ikev2 local-authentication** command in tunnel-group ipsec-attributes configuration mode. To return to the default value, use the no form of this command.

ikev2 local-authentication {**certificate** *trustpoint* | **pre-shared-key** *key-value*}

no ikev2 local-authentication {**certificate** *trustpoint* | **pre-shared-key** *key-value*}

Syntax Description

certificate	Specifies certificate authentication.
trustpoint	Specifies the trustpoint that identifies the certificate to send to the remote peer.
pre-shared-key	Specifies using a local preshared key used to authenticate the remote peer.
key-value	The key value, from 1 to 128 characters.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tunnel-group ipsec-attributes configuration	•	—	•	—	—

Command History

Release	Modification
8.4(1)	This command was introduced.

Usage Guidelines

The setting applies to IPsec IKEv2 LAN-to-LAN tunnel groups only.

Examples

The following command entered in tunnel-group ipsec-attributes configuration mode, specifies the preshared key XYZX to support IKE connections for the IPsec LAN-to-LAN tunnel group named 209.165.200.225:

```
hostname(config)# tunnel-group 209.165.200.225 type IPSec_L2L
hostname(config)# tunnel-group 209.165.200.225 ipsec-attributes
hostname(config-tunnel-ipsec)# ikev2 local-authentication pre-shared-key XYZX
```

Related Commands

Command	Description
clear-configure tunnel-group	Clears all configured tunnel groups.
show running-config tunnel-group	Shows the tunnel group configuration for all tunnel groups or for a particular tunnel group.
tunnel-group ipsec-attributes	Configures the tunnel group IPsec attributes for this group.

ikev2 remote-authentication

To specify remote authentication for IPsec IKEv2 LAN-to-LAN connections, use the **ikev2 local-authentication** command in tunnel-group ipsec-attributes configuration mode. To return to the default value, use the no form of this command.

ikev2 remote-authentication {**certificate** *trustpoint* | **pre-shared-key** *key-value*}

no ikev2 remote-authentication {**certificate** *trustpoint* | **pre-shared-key** *key-value*}

Syntax Description

certificate	Specifies certificate authentication.
trustpoint	Specifies the trustpoint that identifies the certificate to send to the remote peer.
pre-shared-key	Specifies using a local preshared key used to authenticate the remote peer.
key-value	The key value, from 1 to 128 characters.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tunnel-group ipsec-attributes configuration	•	—	•	—	—

Command History

Release	Modification
8.4(1)	This command was introduced.

Usage Guidelines

The setting applies to IPsec IKEv2 LAN-to-LAN tunnel groups only.

Examples

The following command entered in tunnel-group ipsec-attributes configuration mode, specifies the preshared key XYZX to support IKEv2 connections for the IPsec LAN-to-LAN tunnel group named 209.165.200.225:

```
hostname(config)# tunnel-group 209.165.200.225 type IPSec_L2L
hostname(config)# tunnel-group 209.165.200.225 ipsec-attributes
hostname(config-tunnel-ipsec)# ikev2 remote-authentication pre-shared-key xyzx
```

Related Commands

Command	Description
clear-configure tunnel-group	Clears all configured tunnel groups.
show running-config tunnel-group	Shows the tunnel group configuration for all tunnel groups or for a particular tunnel group.
tunnel-group ipsec-attributes	Configures the tunnel group IPsec attributes for this group.

im

To enable instant messaging over SIP, use the **im** command in parameters configuration mode, which is accessible from policy map configuration mode. To disable this feature, use the **no** form of this command.

im

no im

Syntax Description

This command has no arguments or keywords.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to enable instant messaging over SIP in a SIP inspection policy map:

```
hostname(config)# policy-map type inspect sip sip_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# im
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

imap4s

To enter IMAP4S configuration mode, use the **imap4s** command in global configuration mode. To remove any commands entered in IMAP4S command mode, use the **no** form of this command.

imap4s

no imap4s

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

IMAP4 is a client/server protocol in which your Internet server receives and holds e-mail for you. You (or your e-mail client) can view just the heading and the sender of the letter and then decide whether to download the mail. You can also create and manipulate multiple folders or mailboxes on the server, delete messages, or search for certain parts or an entire note. IMAP requires continual access to the server during the time that you are working with your mail. IMAP4S lets you receive e-mail over an SSL connection.

Examples

The following example shows how to enter IMAP4S configuration mode:

```
hostname(config)# imap4s
hostname(config-imap4s)#
```

Related Commands

Command	Description
clear configure imap4s	Removes the IMAP4S configuration.
show running-config imap4s	Displays the running configuration for IMAP4S.

import webvpn customization

To load a customization object onto the flash device of the ASA, enter the **import webvpn customization** command in privileged EXEC mode.

import webvpn customization *name URL*

Syntax Description

name	The name that identifies the customization object. The maximum number is 64 characters.
URL	Remote path to the source of the XML customization object. The maximum number is 255 characters.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•		—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Make sure WebVPN is enabled on an ASA interface before you enter the **import customization** command. To do so, enter the **show running-config** command.

The ASA does the following when you import a customization object:

- Copies the customization object from the URL to the ASA file system disk0:/csco_config/customization as MD5*name*.
- Performs a basic XML syntax check on the file. If it is invalid, the ASA deletes the file.
- Checks that the file in index.ini contains the record MD5*name*. If not, the ASA adds MD5*name* to the file.
- Copies the MD5*name* file to RAMFS /csco_config/customization/ with as ramfs *name*.

Examples

The following example imports to the ASA a customization object, *General.xml*, from the URL 209.165.201.22/customization and names it *custom1*.

```
hostname# import webvpn customization custom1 tftp://209.165.201.22/customization
/General.xml
```

```
Accessing
tftp://209.165.201.22/customization/General.xml...!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Writing file disk0:/csco_config/97/custom1...
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
329994 bytes copied in 5.350 secs (65998 bytes/sec)
```

Related Commands

Command	Description
revert webvpn customization	Removes the specified customization object from the flash device of the ASA.
show import webvpn customization	Lists the customization objects present on the flash device of the ASA.

import webvpn plug-in protocol

To install a plug-in onto the flash device of the ASA, enter the **import webvpn plug-in protocol** command in privileged EXEC mode.

import webvpn plug-in protocol *protocol URL*

Syntax Description

protocol	• **rdp—**The Remote Desktop Protocol plug-in lets the remote user connect to a computer running Microsoft Terminal Services. Cisco redistributes this plug-in without any changes. The website containing the original is http://properjavardp.sourceforge.net/. • **ssh,telnet—**The Secure Shell plug-in lets the remote user establish a secure channel to a remote computer, or lets the remote user use Telnet to connect to a remote computer. Cisco redistributes this plug-in without any changes. The website containing the original is http://javassh.org/. **Caution** The **import webvpn plug-in protocol ssh,telnet** *URL* command installs *both* the SSH and Telnet plug-ins. Do *not* enter this command once for SSH and once for Telnet. When typing the **ssh,telnet** string, do *not* insert a space. Use the **revert webvpn plug-in protocol** command to remove any **import webvpn plug-in protocol** commands that deviate from these requirements. • **vnc—**The Virtual Network Computing plug-in lets the remote user use a monitor, keyboard, and mouse to view and control a computer with remote desktop sharing turned on. Cisco redistributes this plug-in without any changes. The website containing the original is http://www.tightvnc.com/.
URL	Remote path to the source of the plug-in.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC mode	•	—	•		—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Before installing a plug-in, do the following:

- Make sure Clientless SSL VPN ("webvpn") is enabled on an interface on the ASA. To do so, enter the **show running-config** command.
- Create a temporary directory named "plugins" on a local TFTP server (for example, with the hostname "local_tftp_server"), and download the plug-ins from the Cisco website to the "plugins" directory. Enter the hostname or address of the TFTP server and the path to the plug-in that you need into the URL field of the **import webvpn plug-in protocol** command.

The ASA does the following when you import a plug-in:

- Unpacks the .jar file specified in the *URL*.
- Writes the file to the csco-config/97/plugin directory on the ASA file system.
- Populates the drop-down menu next to the URL attributes in ASDM.
- Enables the plug-in for all future Clientless SSL VPN sessions, and adds a main menu option and an option to the drop-down menu next to the Address field of the portal page. The following table shows the changes to the main menu and address field of the portal page.

Plug-in	Main Menu Option Added to Portal Page	Address Field Option Added to Portal Page
rdp	Terminal Servers	rdp://
ssh,telnet	SSH	ssh://
	Telnet	telnet://
vnc	VNC Client	vnc://

The ASA does not retain the **import webvpn plug-in protocol** command in the configuration. Instead, it loads the contents of the csco-config/97/plugin directory automatically. A secondary ASA obtains the plug-ins from the primary ASA.

When the user in a Clientless SSL VPN session clicks the associated menu option on the portal page, the portal page displays a window to the interface and displays a help pane. The user can select the protocol displayed in the drop-down menu and enter the URL in the Address field to establish a connection.

Note Support has been added for SSH V2 in addition to previous SSH V1 and Telnet. The plug-in protocol is still the same (ssh and telnet), and the URL formats are as follows:
ssh://<target> — uses SSH V2
ssh://<target>/?version=1 — uses SSH V1
telnet://<target> — uses telnet

To remove the respective **import webvpn plug-in protocol** command and disable support for the protocol, use the **revert webvpn plug-in protocol** command.

Examples

The following command adds Clientless SSL VPN support for RDP:

```
hostname# import webvpn plug-in protocol rdp tftp://209.165.201.22/plugins/rdp-plugin.jar
Accessing
tftp://209.165.201.22/plugins/rdp-plugin.jar...!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Writing file disk0:/csco_config/97/plugin/rdp...
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
329994 bytes copied in 5.350 secs (65998 bytes/sec)
```

The following command adds Clientless SSL VPN support for SSH and Telnet:

```
hostname# import webvpn plug-in protocol ssh,telnet
tftp://209.165.201.22/plugins/ssh-plugin.jar

Accessing
tftp://209.165.201.22/plugins/ssh-plugin.jar...!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!
Writing file disk0:/csco_config/97/plugin/ssh...
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
238510 bytes copied in 3.650 secs (79503 bytes/sec)
```

The following command adds Clientless SSL VPN support for VNC:

```
hostname# import webvpn plug-in protocol vnc tftp://209.165.201.22/plugins/vnc-plugin.jar

Accessing tftp://209.165.201.22/plugins/vnc-plugin.jar...!!!!!!!!!!!!!!!!
Writing file disk0:/csco_config/97/plugin/vnc...
!!!!!!!!!!!!!!!!
58147 bytes copied in 2.40 secs (29073 bytes/sec)
hostname#
```

Related Commands

Command	Description
revert webvpn plug-in protocol	Removes the specified plug-in from the flash device of the ASA.
show import webvpn plug-in	Lists the plug-ins present on the flash device of the ASA.

import webvpn translation-table

To import a translation table used to translate terms displayed to remote users establishing SSL VPN connections, use the **import webvpn translation-table** command in privileged EXEC mode.

import webvpn translation-table *translation_domain* **language** *language url*

Syntax Description

language	Specifies a language for the translation table. Enter the value for *language* in the manner expressed by your browser language options.
translation_domain	Specifies the functional area and associated messages visible to remote users.
url	Specifies the URL of the XML file used to create the customization object.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•		—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

The ASA provides language translation for the portal and screens displayed to users that initiate browser-based, clientless SSL VPN connections, as well as the user interface displayed to AnyConnect VPN Client users.

Each functional area and its messages that is visible to remote users has its own translation domain and is specified by the *translation_domain* argument. The following table shows the translation domains and the functional areas translated.

Translation Domain	Functional Areas Translated
AnyConnect	Messages displayed on the user interface of the Cisco AnyConnect VPN Client.
banners	Banners displayed to remote users and messages when VPN access is denied.
CSD	Messages for the Cisco Secure Desktop (CSD).
customization	Messages on the login and logout pages, portal page, and all the messages customizable by the user.

Translation Domain (continued)	Functional Areas Translated (continued)
plugin-ica	Messages for the Citrix plug-in.
plugin-rdp	Messages for the Remote Desktop Protocol plug-in.
plugin-telnet,ssh	Messages for the Telnet and SSH plug-in.
plugin-vnc	Messages for the VNC plug-in.
PortForwarder	Messages displayed to port forwarding users.
url-list	Text that user specifies for URL bookmarks on the portal page.
webvpn	All the layer 7, AAA, and portal messages that are not customizable.

A translation template is an XML file in the same format as the translation table, but has all the translations empty. The software image package for the ASA includes a template for each domain that is part of the standard functionality. Templates for plug-ins are included with the plug-ins and define their own translation domains. Because you can customize the login and logout pages, portal page, and URL bookmarks for clientless users, the ASA generates the **customization** and **url-list** translation domain templates dynamically, and the template automatically reflects your changes to these functional areas.

Download the template for the translation domain using the **export webvpn translation-table** command, make changes to the messages, and use the **import webvpn translation-table** command to create the object. You can view available objects with the **show import webvpn translation-table** command.

Be sure to specify language in the manner expressed by your browser language options. For example, Microsoft Internet Explorer uses the abbreviation *zh* for the Chinese language. The translation table imported to the ASA must also be named *zh*.

With the exception of the AnyConnect translation domain, a translation table has no affect, and messages are not translated until you create a customization object, identify a translation table to use in that object, and specify the customization for the group policy or user. Changes to the translation table for the AnyConnect domain are immediately visible to AnyConnect client users. See the **import webvpn customization** command for more information.

Examples

The following example imports a translation-table for the translation domain affecting the AnyConnect client user interface, and specifies the translation table is for the Chinese language. The **show import webvpn translation-table** command displays the new object:

```
hostname# import webvpn translation-table anyconnect language zh
tftp://209.165.200.225/anyconnect
hostname# !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
hostname# show import webvpn translation-table
Translation Tables' Templates:
customization
AnyConnect
CSD
PortForwarder
url-list
webvpn
Citrix-plugin
RPC-plugin
Telnet-SSH-plugin
VNC-plugin
```

```
Translation Tables:
zh AnyConnect
```

Related Commands

Command	Description
export webvpn translation-table	Exports a translation table.
import webvpn customization	Imports a customization object that references the translation table.
revert	Removes translation tables from flash.
show import webvpn translation-table	Displays available translation table templates and translation tables.

import webvpn url-list

To load a URL list onto the flash device of the ASA, enter the **import webvpn url-list** command in privileged EXEC mode.

import webvpn url-list *name URL*

Syntax Description

name	The name that identifies the URL list. The maximum number is 64 characters.
URL	Remote path to the source of the URL list. The maximum number is 255 characters.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC mode	•	—	•		—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Make sure that WebVPN is enabled on a ASA interface before you enter the **import url-list** command. To do so, enter the **show running-config** command.

The ASA does the following when you import a URL list:

- Copies the URL list from the URL to the ASA file system disk0:/csco_config/url-lists as *name on flash* = base 64*name*.
- Performs a basic XML syntax check on the file. If the syntax is invalid, the ASA deletes the file.
- Checks that the file in index.ini contains the record base 64*name*. If not, the ASA adds base 64*name* to the file.
- Copies the *name* file to RAMFS /csco_config/url-lists/ with ramfs name = *name*.

Examples

The following example imports a URL list, *NewList.xml*, from the URL 209.165.201.22/url-lists to the ASA and names it *ABCList*.

```
hostname# import webvpn url-list ABCList tftp://209.165.201.22/url-lists/NewList.xml
```

```
Accessing
tftp://209.165.201.22/url-lists/NewList.xml...!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Writing file disk0:/csco_config/97/ABClist...
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
329994 bytes copied in 5.350 secs (65998 bytes/sec)
```

Related Commands

Command	Description
revert webvpn url-list	Removes the specified URL list from the flash device of the ASA.
show import webvpn url-list	Lists the URL lists present on the flash device of the ASA.

import webvpn webcontent

To import content to flash memory that is visible to remote Clientless SSL VPN users, use the **import webvpn webcontent** command in privileged EXEC mode.

import webvpn webcontent *destination url source url*

Syntax Description

destination url	The URL to export to. The maximum number is 255 characters.
source url	The URL in the ASA flash memory in which the content resides. The maximum number is 64 characters.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•		—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Content imported with the **webcontent** option is visible to remote Clientless users. This includes help content visible on the Clientless portal and logos used by customization objects that customize user screens.

Content imported to URLs with the path /+CSCOE+/ is visible only to authorized users.

Content imported to URLs with the path /+CSCOU+/ is visible to both unauthorized and authorized users.

For example, a corporate logo imported as /+CSCOU+/logo.gif could be used in a portal customization object and be visible on the logon page and the portal page. The same logo.gif file imported as /+CSCOE+/logo.gif would only be visible to remote users after they have logged in successfully.

Help content that appears on the various application screens must be imported to specific URLs. The following table shows the URLs and screen areas for the help content displayed for standard Clientless applications:

URL	Clientless Screen Area
/+CSCOE+/help/*language*/app-access-hlp.inc	Application Access
/+CSCOE+/help/*language*/file-access-hlp.inc	Browse Networks

URL (continued)	Clientless Screen Area (continued)
/+CSCOE+/help/*language*/net_access_hlp.html	AnyConnect Client
/+CSCOE+/help/*language*/web-access-help.inc	Web Access

The following table shows the URLs and screen areas for the help content displayed for optional plug-in Clientless applications:

URL	Clientless Screen Area
/+CSCOE+/help/*language*/ica-hlp.inc	MetaFrame Access
/+CSCOE+/help/*language*/rdp-hlp.inc	Terminal Servers
/+CSCOE+/help/*language*/ssh,telnet-hlp.inc	Telnet/SSH Servers
/+CSCOE+/help/*language*/vnc-hlp.inc	VNC Connections

The *language* entry in the URL path is the language abbreviation that you designate for the help content. The ASA does not actually translate the file into the language you specify, but labels the file with the language abbreviation.

Examples

The following example imports the HTML file *application_access_help.html,* from a TFTP server at 209.165.200.225, to the URL that stores the Application Access help content in flash memory. The URL includes the abbrevation *en* for the English language:

```
hostname# import webvpn webcontent /+CSCOE+/help/en/app-access-hlp.inc
tftp://209.165.200.225/application_access_help.html
!!!!* Web resource `+CSCOE+/help/en/ap-access-hlp.inc' was successfully initialized
hostname#
```

The following example imports the HTML file *application_access_help.html,* from a tftp server at 209.165.200.225, to the URL that stores the Application Access help content in flash memory. The URL includes the abbrevation *en* for the English language:

```
hostname# import webvpn webcontent /+CSCOE+/help/en/app-access-hlp.inc
tftp://209.165.200.225/application_access_help.html
!!!!* Web resource `+CSCOE+/help/en/ap-access-hlp.inc' was successfully initialized
hostname#
```

Related Commands

Command	Description
export webvpn webcontent	Exports previously imported content visible to Clientless SSL VPN users.
revert webvpn webcontent	Removes content from flash memory.
show import webvpn webcontent	Displays information about imported content.

inspect ctiqbe through inspect xdmcp Commands

inspect ctiqbe

To enable CTIQBE protocol inspection, use the **inspect ctiqbe** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To disable inspection, use the **no** form of this command.

inspect ctiqbe

no inspect ctiqbe

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced and replaces the previously existing **fixup** command, which has been deprecated.

Usage Guidelines

The **inspect ctiqbe** command enables CTIQBE protocol inspection, which supports NAT, PAT, and bidirectional NAT. This enables Cisco IP SoftPhone and other Cisco TAPI/JTAPI applications to work successfully with Cisco CallManager for call setup across the ASA.

The Telephony Application Programming Interface (TAPI) and Java Telephony Application Programming Interface (JTAPI) are used by many Cisco VoIP applications. Computer Telephony Interface Quick Buffer Encoding (CTIQBE) is used by Cisco TAPI Service Provider (TSP) to communicate with Cisco CallManager.

The following summarizes limitations that apply when using CTIQBE application inspection:

- CTIQBE application inspection does not support configurations using the **alias** command.
- Stateful Failover of CTIQBE calls is *not* supported.
- Using the **debug ctiqbe** command may delay message transmission, which may have a performance impact in a real-time environment. When you enable this debugging or logging and Cisco IP SoftPhone seems unable to complete call setup through the ASA, increase the timeout values in the Cisco TSP settings on the system running Cisco IP SoftPhone.
- CTIQBE application inspection does *not* support CTIQBE messages fragmented in multiple TCP packets.

The following summarizes special considerations when using CTIQBE application inspection in specific scenarios:

- If two Cisco IP SoftPhones are registered with different Cisco CallManagers, which are connected to different interfaces of the ASA, calls between these two phones will fail.
- When Cisco CallManager is located on the higher security interface compared to Cisco IP SoftPhones, if NAT or outside NAT is required for the Cisco CallManager IP address, the mapping must be static as Cisco IP SoftPhone requires the Cisco CallManager IP address to be specified explicitly in its Cisco TSP configuration on the PC.
- When using PAT or Outside PAT, if the Cisco CallManager IP address is to be translated, its TCP port 2748 must be statically mapped to the same port of the PAT (interface) address for Cisco IP SoftPhone registrations to succeed. The CTIQBE listening port (TCP 2748) is fixed and is not user-configurable on Cisco CallManager, Cisco IP SoftPhone, or Cisco TSP.

Inspecting Signaling Messages

For inspecting signaling messages, the **inspect ctiqbe** command often needs to determine locations of the media endpoints (for example, IP phones).

This information is used to prepare access control and NAT state for media traffic to traverse the firewall transparently without manual configuration.

In determining these locations, the **inspect ctiqbe** command does not use the tunnel default gateway route. A tunnel default gateway route is a route of the form **route** *interface* **0 0** *metric* **tunneled**. This route overrides the default route for packets that egress from IPsec tunnels. Therefore, if the **inspect ctiqbe** command is desired for VPN traffic, do not configure the tunnel default gateway route. Instead, use other static routing or dynamic routing.

Examples

The following example enables the CTIQBE inspection engine, which creates a class map to match CTIQBE traffic on the default port (2748). The service policy is then applied to the outside interface.

```
hostname(config)# class-map ctiqbe-port
hostname(config-cmap)# match port tcp eq 2748
hostname(config-cmap)# exit
hostname(config)# policy-map ctiqbe_policy
hostname(config-pmap)# class ctiqbe-port
hostname(config-pmap-c)# inspect ctiqbe
hostname(config-pmap-c)# exit
hostname(config)# service-policy ctiqbe_policy interface outside
```

To enable CTIQBE inspection for all interfaces, use the **global** parameter in place of **interface outside**.

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
show conn	Displays the connection state for different connection types.
show ctiqbe	Displays information regarding the CTIQBE sessions established across the ASA and the media connections allocated by the CTIQBE inspection engine.
timeout	Sets the maximum idle time duration for different protocols and session types.

inspect dcerpc

To enable inspection of DCERPC traffic destined for the endpoint-mapper, use the **inspect dcerpc** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

inspect dcerpc [*map_name*]

no inspect dceprc [*map_name*]

Syntax Description

map_name	(Optional) The name of the DCERPC map.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

The **inspect dcerpc** command enables or disables application inspection for the DCERPC protocol.

Examples

The following example shows how to define a DCERPC inspection policy map with the timeout configured for DCERPC pinholes.

```
hostname(config)# policy-map type inspect dcerpc dcerpc_map
hostname(config-pmap)# timeout pinhole 0:10:00

hostname(config)# class-map dcerpc
hostname(config-cmap)# match port tcp eq 135

hostname(config)# policy-map global-policy
hostname(config-pmap)# class dcerpc
hostname(config-pmap-c)# inspect dcerpc dcerpc_map

hostname(config)# service-policy global-policy global
```

Related Commands

Commands	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.
timeout pinhole	Configures the timeout for DCERPC pinholes and overrides the global system pinhole timeout.

inspect dns

To enable DNS inspection (if it has been previously disabled) or to configure DNS inspection parameters, use the **inspect dns** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To disable DNS inspection, use the **no** form of this command.

inspect dns [*map_name*] [**dynamic-filter-snoop**]

no inspect dns [*map_name*] [**dynamic-filter-snoop**]

Syntax Description

dynamic-filter-snoop	(Optional) Enables DNS inspection with Botnet Traffic Filter snooping.
map_name	(Optional) Specifies the name of the DNS map.

Defaults

This command is enabled by default. Botnet Traffic Filter snooping is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced, replacing the **fixup** command, which has been deprecated.
7.2(1)	This command was modified to allow configuration of additional DNS inspection parameters.
8.2(1)	The **dynamic-filter-snoop** keyword was added.

Usage Guidelines

DNS guard tears down the DNS session associated with a DNS query as soon as the DNS reply is forwarded by the ASA. DNS guard also monitors the message exchange to ensure that the ID of the DNS reply matches the ID of the DNS query.

When DNS inspection is enabled, which it is the default, the ASA performs the following additional tasks:

- Translates the DNS record based on the configuration completed using the **alias**, **static** and **nat** commands (DNS rewrite). Translation only applies to the A-record in the DNS reply. Therefore, reverse lookups, which request the PTR record, are not affected by DNS rewrite.

Note DNS rewrite is not applicable for PAT because multiple PAT rules are applicable for each A-record, and the PAT rule to use is ambiguous.

- Enforces the maximum DNS message length (the default is 512 bytes and the maximum length is 65535 bytes). Reassembly is performed as necessary to verify that the packet length is less than the maximum length configured. The packet is dropped if it exceeds the maximum length.
- Enforces a domain-name length of 255 bytes and a label length of 63 bytes.
- Verifies the integrity of the domain name referred to by the pointer if compression pointers are encountered in the DNS message.
- Checks to see if a compression pointer loop exists.

A single connection is created for multiple DNS sessions, as long as they are between the same two hosts, and the sessions have the same 5-tuple (source/destination IP address, source/destination port, and protocol). DNS identification is tracked by *app_id*, and the idle timer for each *app_id* runs independently.

Because the *app_id* expires independently, a legitimate DNS response can only pass through the ASA within a limited period of time and there is no resource buildup. However, if you enter the **show conn** command, you will see the idle timer of a DNS connection being reset by a new DNS session. This is due to the nature of the shared DNS connection and is by design.

How DNS Rewrite Works

When DNS inspection is enabled, DNS rewrite provides full support for NAT of DNS messages originating from any interface.

If a client on an inside network requests DNS resolution of an inside address from a DNS server on an outside interface, the DNS A-record is translated correctly. If the DNS inspection engine is disabled, the A-record is not translated.

DNS rewrite performs two functions:

- Translating a public address (the routable or “mapped” address) in a DNS reply to a private address (the “real” address) when the DNS client is on a private interface.
- Translating a private address to a public address when the DNS client is on the public interface.

As long as DNS inspection remains enabled, you can configure DNS rewrite using the **alias**, **static**, or **nat** commands. For details about the syntax and function of these commands, see the appropriate command page.

Botnet Traffic Filter Snooping and the DNS Reverse Lookup Cache

Botnet Traffic Filter snooping compares the domain name with those on the dynamic database or the static database, and adds the name and IP address to the Botnet Traffic Filter DNS reverse lookup cache. This cache is then used by the Botnet Traffic Filter when connections are made to the suspicious address.

We suggest that you enable Botnet Traffic Filter snooping only on interfaces where external DNS requests are going. Enabling Botnet Traffic Filter snooping on all UDP DNS traffic, including that going to an internal DNS server, creates unnecessary load on the ASA.

When you use the dynamic database with DNS snooping, entries are added to the DNS reverse lookup cache. If you use the static database, entries are added to the DNS host cache.

Entries in the DNS reverse lookup cache and the DNS host cache have a time-to-live (TTL) value provided by the DNS server. The largest TTL value allowed is 1 day (24 hours); if the DNS server provides a larger TTL, it is truncated to the 1-day maximum.

For the DNS reverse lookup cache, after an entry times out, the ASA renews the entry when an infected host initiates a connection to a known address, and DNS snooping occurs.

For the DNS host cache, after an entry times out, the ASA periodically requests a refresh for the entry.

For the DNS host cache, the maximum number of blacklist entries and whitelist entries is 1000 each.

Table 25-1 lists the maximum number of entries in the DNS reverse lookup cache per model.

Table 25-1 DNS Reverse Lookup Cache Entries Per Model

ASA Model	Maximum Entries
ASA 5505	5000
ASA 5510	10,000
ASA 5520	20,000
ASA 5540	40,000
ASA 5550	40,000
ASA 5580	100,000

Examples

The following example shows how to set the maximum DNS message length:

```
hostname(config)# policy-map type inspect dns dns-inspect
hostname(config-pmap)# parameters
hostname(config-pmap-p)# message-length maximum 1024
```

The following example creates a class map for all UDP DNS traffic, enables DNS inspection and Botnet Traffic Filter snooping with the default DNS inspection policy map, and applies it to the outside interface:

```
hostname(config)# class-map dynamic-filter_snoop_class
hostname(config-cmap)# match port udp eq domain
hostname(config-cmap)# policy-map dynamic-filter_snoop_policy
hostname(config-pmap)# class dynamic-filter_snoop_class
hostname(config-pmap-c)# inspect dns preset_dns_map dynamic-filter-snoop
hostname(config-pmap-c)# service-policy dynamic-filter_snoop_policy interface outside
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
debug dns	Enables debugging information for DNS.
dynamic-filter enable	Enables the Botnet Traffic Filter for a class of traffic or for all traffic if you do not specify an access list.
dynamic-filter updater-client enable	Enables downloading of the dynamic database.
dynamic-filter use-database	Enables use of the dynamic database.
dynamic-filter whitelist	Edits the Botnet Traffic Filter whitelist.
name	Adds a name to the blacklist or whitelist.

Commands	Description
policy-map	Associates a class map with specific security actions.
service-policy	Applies a policy map to one or more interfaces.

inspect esmtp

To enable SMTP application inspection or to change the ports to which the ASA listens, use the **inspect esmtp** command in class configuration mode. The class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

inspect esmtp [*map_name*]

no inspect esmtp [*map_name*]

Syntax Description

map_name	(Optional) The name of the ESMTP map.

Defaults

This command is enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced, replacing the **fixup** command, which has been deprecated.

Usage Guidelines

ESMTP application inspection provides improved protection against SMTP-based attacks by restricting the types of SMTP commands that can pass through the ASA and by adding monitoring capabilities.

ESMTP is an enhancement to the SMTP protocol and is similar in most respects to SMTP. For convenience, the term SMTP is used in this document to refer to both SMTP and ESMTP. The application inspection process for extended SMTP is similar to SMTP application inspection and includes support for SMTP sessions. Most commands used in an extended SMTP session are the same as those used in an SMTP session but an ESMTP session is considerably faster and offers more options related to reliability and security, such as delivery status notification.

The **inspect esmtp** command includes the functionality previously provided by the **fixup smtp** command, and provides additional support for some extended SMTP commands. Extended SMTP application inspection adds support for these extended SMTP commands, including AUTH, EHLO, ETRN, HELP, SAML, SEND, SOML, STARTLS, and VRFY. Along with the support for seven RFC 821 commands (DATA, HELO, MAIL, NOOP, QUIT, RCPT, RSET), the ASA supports a total of fifteen SMTP commands.

Other extended SMTP commands, such as ATRN, ONEX, VERB, CHUNKING, and private extensions and are not supported. Unsupported commands are translated into Xs, which are rejected by the internal server. This results in a message such as “500 Command unknown: 'XXX'.” Incomplete commands are discarded.

The **inspect esmtp** command changes the characters in the server SMTP banner to asterisks except for the “2”, “0”, “0” characters. Carriage return (CR) and linefeed (LF) characters are ignored.

With SMTP inspection enabled, a Telnet session used for interactive SMTP waits for a valid command and the firewall esmtp state machine keeps the correct states for the session if the following rules are not observed: SMTP commands must be at least four characters in length; must be terminated with carriage return and line feed; and must wait for a response before issuing the next reply.

An SMTP server responds to client requests with numeric reply codes and optional human readable strings. SMTP application inspection controls and reduces the commands that the user can use as well as the messages that the server returns. SMTP inspection performs three primary tasks:

- Restricts SMTP requests to seven basic SMTP commands and eight extended commands.
- Monitors the SMTP command-response sequence.
- Generates an audit trail—Audit record 108002 is generated when invalid character embedded in the mail address is replaced. For more information, see RFC 821.

SMTP inspection monitors the command and response sequence for the following anomalous signatures:

- Truncated commands.
- Incorrect command termination (not terminated with <CR><LR>).
- The MAIL and RCPT commands specify who are the sender and the receiver of the mail. Mail addresses are scanned for strange characters. The pipeline character (|) is deleted (changed to a blank space) and “<” ,”>” are only allowed if they are used to define a mail address (“>” must be preceded by “<”). To close the session when the PIPE character is found as a parameter to a MAIL from or RCPT to command, include the **special-character** command in the configuration as part of the inspection parameters (**parameters** command).
- Unexpected transition by the SMTP server.
- For unknown commands, the ASA changes all the characters in the packet to X. In this case, the server will generate an error code to the client. Because of the change in the packet, the TCP checksum has to be recalculated or adjusted.
- TCP stream editing.
- Command pipelining.

To enable SMTP inspection for all interfaces, use the **global** parameter in place of **interface outside**.

Examples

The following example enables the SMTP inspection engine, which creates a class map to match SMTP traffic on the default port (25). The service policy is then applied to the outside interface.

```
hostname(config)# class-map smtp-port
hostname(config-cmap)# match port tcp eq 25
hostname(config-cmap)# exit
hostname(config)# policy-map smtp_policy
hostname(config-pmap)# class smtp-port
hostname(config-pmap-c)# inspect esmtp
hostname(config-pmap-c)# exit
hostname(config)# service-policy smtp_policy interface outside
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
debug esmtp	Enables debugging information for SMTP.
policy-map	Associates a class map with specific security actions.
service-policy	Applies a policy map to one or more interfaces.
show conn	Displays the connection state for different connection types, including SMTP.

inspect ftp

To configure the port for FTP inspection or to enable enhanced inspection, use the **inspect ftp** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

inspect ftp [**strict** [*map_name*]]

no inspect ftp [**strict** [*map_name*]]

Syntax Description

map_name	The name of the FTP map.
strict	(Optional) Enables enhanced inspection of FTP traffic and forces compliance with RFC standards.

Caution Use caution when moving FTP to a higher port. For example, if you set the FTP port to 2021, all connections that initiate to port 2021 will have their data payload interpreted as FTP commands.

Defaults

The ASA listens to port 21 for FTP by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced, replacing the **fixup** command, which has been deprecated. The *map_name* option was added.

Usage Guidelines

The FTP application inspection inspects the FTP sessions and performs four tasks:

- Prepares dynamic secondary data connections
- Tracks **ftp** command-response sequence
- Generates an audit trail
- NATs embedded IP addresses

Note Except for the banner, **inspect ftp** does not support FTP servers that segment FTP command or response.

FTP application inspection prepares secondary channels for FTP data transfer. The channels are allocated in response to a file upload, a file download, or a directory listing event and must be prenegotiated. The port is negotiated through the PORT or PASV commands.

Note Only specify the port for the FTP control connection and not the data connection. The ASA stateful inspection engine dynamically prepares the data connection as necessary.

Note If you disable FTP inspection engines with the **no inspect ftp** command, outbound users can start connections only in passive mode, and all inbound FTP is disabled.

Using the strict Option

The **strict** option prevents web browsers from sending embedded commands in FTP requests. Each **ftp** command must be acknowledged before a new command is allowed. Connections sending embedded commands are dropped. The **strict** option only lets an FTP server generate the 227 command and only lets an FTP client generate the PORT command. The 227 and PORT commands are checked to ensure they do not appear in an error string.

To enable strict FTP application inspection for all interfaces, use the **global** parameter in place of **interface** command.

Caution The use of the **strict** option may break FTP clients that do not comply with the RFC standards.

If the **strict** option is enabled, each **ftp** command and response sequence is tracked for the following anomalous activity:

- Truncated command—Number of commas in the PORT and PASV reply command is checked to see if it is five. If it is not five, then the PORT command is assumed to be truncated and the TCP connection is closed.
- Incorrect command—Checks the **ftp** command to see if it ends with <CR><LF> characters, as required by the RFC. If it does not, the connection is closed.
- Size of RETR and STOR commands—These are checked against a fixed constant. If the size is greater, then an error message is logged and the connection is closed.
- Command spoofing—The PORT command should always be sent from the client. The TCP connection is denied if a PORT command is sent from the server.
- Reply spoofing—PASV reply command (227) should always be sent from the server. The TCP connection is denied if a PASV reply command is sent from the client. This prevents the security hole when the user executes “227 xxxxx a1, a2, a3, a4, p1, p2.”
- TCP stream editing.
- Invalid port negotiation—The negotiated dynamic port value is checked to see if it is less than 1024. As port numbers in the range from 1 to 1024 are reserved for well-known connections, if the negotiated port falls in this range, then the TCP connection is freed.
- Command pipelining—The number of characters present after the port numbers in the PORT and PASV reply command is cross checked with a constant value of 8. If it is more than 8, then the TCP connection is closed.
- The ASA replaces the FTP server response to the SYST command with a series of Xs. to prevent the server from revealing its system type to FTP clients. To override this default behavior, use the **no mask-syst-reply** command in FTP map configuration mode.

Note To identify specific FTP commands that are not permitted to pass through the ASA, identify an FTP map and use the **request-command deny** command. For details, see the **ftp-map** and the **request-command deny** command pages.

FTP Log Messages

FTP application inspection generates the following log messages:

- An Audit record 302002 is generated for each file that is retrieved or uploaded.
- The **ftp** command is checked to see if it is RETR or STOR and the retrieve and store commands are logged.
- The username is obtained by looking up a table providing the IP address.
- The username, source IP address, destination IP address, NAT address, and the file operation are logged.
- Audit record 201005 is generated if the secondary dynamic channel preparation failed due to memory shortage.

In conjunction with NAT, the FTP application inspection translates the IP address within the application payload. This is described in detail in RFC 959.

Examples

Before submitting a username and password, all FTP users are presented with a greeting banner. By default, this banner includes version information useful to hackers trying to identify weaknesses in a system. The following example shows how to mask this banner:

```
hostname(config)# policy-map type inspect ftp mymap
hostname(config-pmap)# parameters
hostname(config-pmap-p)# mask-banner
hostname(config-pmap-p)# exit
hostname(config-pmap)# exit
hostname(config)# class-map match-all ftp-traffic
hostname(config-cmap)# match port tcp eq ftp
hostname(config-cmap)# exit
hostname(config)# policy-map ftp-policy
hostname(config-pmap)# class ftp-traffic
hostname(config-pmap-c)# inspect ftp strict mymap
hostname(config-pmap-c)# exit
hostname(config-pmap)# exit
hostname(config)# service-policy ftp-policy interface inside
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
mask-syst-reply	Hides the FTP server response from clients.
policy-map	Associates a class map with specific security actions.
request-command deny	Specifies FTP commands to disallow.
service-policy	Applies a policy map to one or more interfaces.

inspect gtp

To enable or disable GTP inspection or to define a GTP map for controlling GTP traffic or tunnels, use the **inspect gtp** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. Use the **no** form of this command to remove the command.

inspect gtp [*map_name*]

no inspect gtp [*map_name*]

Note GTP inspection requires a special license. If you enter the **inspect gtp** command on an ASA without the required license, the ASA displays an error message.

Syntax Description

map_name	(Optional) Name for the GTP map.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Class configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

GTP is the tunnelling protocol for GPRS, and helps provide secure access over wireless networks. GPRS is a data network architecture that is designed to integrate with existing GSM networks. It offers mobile subscribers uninterrupted, packet-switched data services to corporate networks and the Internet. For an overview of GTP, see the the CLI configuration guide**.**

Use the **gtp-map** command to identify a specific map to use for defining the parameters for GTP. When you enter this command, the system enters a configuration mode that lets you enter the different commands used for defining the specific map. The actions that you can specify for messages that fail the criteria set using the different configuration commands include **drop** and **rate-limit**. In addition to these actions, you can specify to **log** the event or not.

After defining the GTP map, you use the **inspect gtp** command to enable the map. Then you use the **class-map**, **policy-map**, and **service-policy** commands to define a class of traffic, to apply the **inspect** command to the class, and to apply the policy to one or more interfaces.

The well-known ports for GTP are as follows:

- 3386
- 2123

The following features are not supported in 7.0(1):

- NAT, PAT, Outside NAT, alias, and Policy NAT
- Ports other than 3386, 2123, and 2152
- Validating the tunneled IP packet and its contents

Inspecting Signaling Messages

For inspecting signaling messages, the **inspect gtp** command often needs to determine locations of the media endpoints (for example, IP phones).

This information is used to prepare access control and NAT state for media traffic to traverse the firewall transparently without manual configuration.

In determining these locations, the **inspect gtp** command does **not** use the tunnel default gateway route. A tunnel default gateway route is a route of the form **route** *interface* **0 0** *metric* **tunneled**. This route overrides the default route for packets that egress from IPsec tunnels. Therefore, if the **inspect gtp** command is desired for VPN traffic, do not configure the tunnel default gateway route. Instead, use other static routing or dynamic routing.

Examples

The following example shows how to use access lists to identify GTP traffic, define a GTP map, define a policy, and apply the policy to the outside interface:

```
hostname(config)# access-list gtp-acl permit udp any any eq 3386
hostname(config)# access-list gtp-acl permit udp any any eq 2123
hostname(config)# class-map gtp-traffic
hostname(config)# match access-list gtp-acl
hostname(config)# gtp-map gtp-policy
hostname(config)# policy-map inspection_policy
hostname(config-pmap)# class gtp-traffic
hostname(config-pmap-c)# inspect gtp gtp-policy
hostname(config)# service-policy inspection_policy interface outside
```

Note This example enables GTP inspection with the default values. To change the default values, refer to the **gtp-map** command page and to the command pages for each command that is entered from GTP map configuration mode.

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
clear service-policy inspect gtp	Clears global GTP statistics.
debug gtp	Displays detailed information about GTP inspection.
service-policy	Applies a policy map to one or more interfaces.
show service-policy inspect gtp	Shows that status and statistics of the **inspect gtp** policy.

inspect h323

To enable H.323 application inspection or to change the ports to which the ASA listens, use the **inspect h323** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

inspect h323 {**h225** | **ras**} [*map_name*]

no inspect h323 {**h225** | **ras**} [*map_name*]

Syntax Description

h225	Enables H.225 signalling inspection.
map_name	(Optional) The name of the H.323 map.
ras	Enables RAS inspection.

Defaults

The default port assignments are as follows:

- h323 h225 1720
- h323 ras 1718-1719

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Class configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced, replacing the **fixup** command, which has been deprecated.

Usage Guidelines

The **inspect h323** command provides support for H.323 compliant applications such as Cisco CallManager and VocalTec Gatekeeper. H.323 is a suite of protocols defined by the International Telecommunication Union (ITU) for multimedia conferences over LANs. The ASA supports H.323 through Version 6, including the H.323 v3 feature Multiple Calls on One Call Signaling Channel.

With H.323 inspection enabled, the ASA supports multiple calls on the same call signaling channel, a feature introduced with H.323 Version 3. This feature reduces call setup time and reduces the use of ports on the ASA.

The two major functions of H.323 inspection are as follows:

- NAT the necessary embedded IPv4 addresses in the H.225 and H.245 messages. Because H.323 messages are encoded in PER encoding format, the ASA uses an ASN.1 decoder to decode the H.323 messages.

- Dynamically allocate the negotiated H.245 and RTP/RTCP connections.

How H.323 Works

The H.323 collection of protocols collectively may use up to two TCP connection and four to six UDP connections. FastStart uses only one TCP connection, and RAS uses a single UDP connection for registration, admissions, and status.

An H.323 client may initially establish a TCP connection to an H.323 server using TCP port 1720 to request Q.931 call setup. As part of the call setup process, the H.323 terminal supplies a port number to the client to use for an H.245 TCP connection. The H.245 connection is for call negotiation and media channel setup. In environments where H.323 gatekeeper is in use, the initial packet is transmitted using UDP.

H.323 inspection monitors the Q.931 TCP connection to determine the H.245 port number. If the H.323 terminals are not using FastStart, the ASA dynamically allocates the H.245 connection based on the inspection of the H.225 messages.

Note The H.225 connection can also be dynamically allocated when using RAS.

Within each H.245 message, the H.323 endpoints exchange port numbers that are used for subsequent UDP data streams. H.323 inspection inspects the H.245 messages to identify these ports and dynamically creates connections for the media exchange. Real-Time Transport Protocol (RTP) uses the negotiated port number, while RTP Control Protocol (RTCP) uses the next higher port number.

The H.323 control channel handles H.225 and H.245 and H.323 RAS. H.323 inspection uses the following ports.

- 1718—UDP port used for gatekeeper discovery
- 1719—UDP port used for RAS and for gatekeeper discovery
- 1720—TCP Control Port

If the ACF message from the gatekeeper goes through the ASA, a pinhole will be opened for the H.225 connection. The H.245 signaling ports are negotiated between the endpoints in the H.225 signaling. When an H.323 gatekeeper is used, the ASA opens an H.225 connection based on inspection of the ACF message. If | the ASA does not see the ACF message, you might need to open an access list for the well-known H.323 port 1720 for the H.225 call signaling.

The ASA dynamically allocates the H.245 channel after inspecting the H.225 messages and then hooks up to the H.245 channel to be fixed up as well. That means whatever H.245 messages pass through the ASA pass through the H.245 application inspection, NATing embedded IP addresses and opening the negotiated media channels.

The H.323 ITU standard requires that a TPKT header, defining the length of the message, precede the H.225 and H.245, before being passed on to the reliable connection. Because the TPKT header does not necessarily need to be sent in the same TCP packet as the H.225/H.245 message, the ASA must remember the TPKT length to process/decode the messages properly. The ASA keeps a data structure for each connection and that data structure contains the TPKT length for the next expected message.

If the ASA needs to NAT any IP addresses, then it will have to change the checksum, the UUIE (user-user information element) length, and the TPKT, if included in the TCP packet with the H.225 message. If the TPKT is sent in a separate TCP packet, then the ASA will proxy ACK that TPKT and append a new TPKT to the H.245 message with the new length.

Note The ASA does not support TCP options in the Proxy ACK for the TPKT.

Each UDP connection with a packet going through H.323 inspection is marked as an H.323 connection and will time out with the H.323 timeout as configured using the **timeout** command.

H.239 Support in H.245 Messages

The ASA sits between two H.323 endpoints. When the two H.323 endpoints set up a telepresentation session so that the endpoints can send and receive a data presentation, such as spreadsheet data, the ASA ensures successful H.239 negotiation between the endpoints.

H.239 is a standar that provides the ability for H.300 series endpoints can to open an additional video channel in a single call. In a call, an endpoint (such as a video phone), sends a channel for video and a channel for data presentation. The H.239 negotiation occurs on the H.245 channel.

The ASA opens a pinhole for the additional media channel. The endpoints use open logical channel message (OLC) to signal a new channel creation. The message extension is part of H.245 version 13.

The decoding and encoding of of the telepresentation session is enabled by default. H.239 encoding and decoding is preformed by ASN.1 coder.

Limitations and Restrictions

The following are some of the known issues and limitations when using H.323 application inspection:

- Static PAT may not properly translate IP addresses embedded in optional fields within H.323 messages. If you experience this kind of problem, do not use static PAT with H.323.
- H.323 application inspection is not supported with NAT between same-security-level interfaces.
- It has been observed that when a NetMeeting client registers with an H.323 gatekeeper and tries to call an H.323 gateway that is also registered with the H.323 gatekeeper, the connection is established but no voice is heard in either direction. This problem is unrelated to the ASA.
- If you configure a network static where the network static is the same as a third-party netmask and address, then any outbound H.323 connection fails.
- To enable H.323 inspection for all interfaces, use the **global** parameter in place of **interface outside**.

Inspecting Signaling Messages

For inspecting signaling messages, the **inspect h323** command often needs to determine locations of the media endpoints (for example, IP phones).

This information is used to prepare access control and NAT state for media traffic to traverse the firewall transparently without manual configuration.

In determining these locations, the **inspect h323** command does **not** use the tunnel default gateway route. A tunnel default gateway route is a route of the form **route** *interface* **0 0** *metric* **tunneled**. This route overrides the default route for packets that egress from IPsec tunnels. Therefore, if the **inspect h323** command is desired for VPN traffic, do not configure the tunnel default gateway route. Instead, use other static routing or dynamic routing.

Examples

The following example enables the H.323 inspection engine, which creates a class map to match H.323 traffic on the default port (1720). The service policy is then applied to the outside interface.

```
hostname(config)# class-map h323-port
hostname(config-cmap)# match port tcp eq 1720
hostname(config-cmap)# exit
hostname(config)# policy-map h323_policy
hostname(config-pmap)# class h323-port
hostname(config-pmap-c)# inspect h323
hostname(config-pmap-c)# exit
```

```
hostname(config)# service-policy h323_policy interface outside
```

Related Commands

Commands	Description
debug h323	Enables the display of debugging information for H.323.
show h225	Displays information for H.225 sessions established across the ASA.
show h245	Displays information for H.245 sessions established across the ASA by endpoints using slow start.
show h323-ras	Displays information for H.323 RAS sessions established across the ASA.
timeout {**h225** | **h323**}	Configures idle time after which an H.225 signalling connection or an H.323 control connection will be closed.

inspect http

To enable HTTP application inspection or to change the ports to which the ASA listens, use the **inspect http command** in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

inspect http [*map_name*]

no inspect http [*map_name*]

Syntax Description

map_name	(Optional) The name of the HTTP map.

Defaults

The default port for HTTP is 80.

Enhanced HTTP inspection is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced, replacing the **fixup** command, which has been deprecated.

Usage Guidelines

The **inspect http** command protects against specific attacks and other threats that may be associated with HTTP traffic. HTTP inspection performs several functions:

- Enhanced HTTP inspection
- URL screening through N2H2 or Websense
- Java and ActiveX filtering

The latter two features are configured in conjunction with the **filter** command.

Enhanced HTTP inspection verifies that HTTP messages conform to RFC 2616, use RFC-defined methods or supported extension methods, and comply with various other criteria. In many cases, you can configure these criteria and the system response when the criteria are not met. The actions that you can specify for messages that fail the criteria set using the different configuration commands include **allow**, **reset**, or **drop**. In addition to these actions, you can specify to log the event or not.

The criteria that you can apply to HTTP messages include the following:

- Does not include any method on a configurable list.

- Specific transfer encoding method or application type.
- HTTP transaction adheres to RFC specification.
- Message body size is within configurable limits.
- Request and response message header size is within a configurable limit.
- URI length is within a configurable limit.
- The content type in the message body matches the header.
- The content type in the response message matches the *accept-type* field in the request message.
- The content type in the message is included in a predefined internal list.
- Message meets HTTP RFC format criteria.
- Presence or absence of selected supported applications.
- Presence or absence of selected encoding types.

Note The actions that you can specify for messages that fail the criteria set using the different configuration commands include **allow**, **reset**, or **drop**. In addition to these actions, you can specify to log the event or not.

To enable enhanced HTTP inspection, enter the **inspect http** *http-map* command. The rules that this applies to HTTP traffic are defined by the specific HTTP map, which you configure by entering the **http-map** command and HTTP map configuration mode commands.

Note When you enable HTTP inspection with an HTTP map, strict HTTP inspection with the action reset and log is enabled by default. You can change the actions performed in response to inspection failure, but you cannot disable strict inspection as long as the HTTP map remains enabled.

Examples

The following example shows how to identify HTTP traffic, define an HTTP map, define a policy, and apply the policy to the outside interface:

```
hostname(config)# class-map http-port
hostname(config-cmap)# match port tcp eq 80
hostname(config-cmap)# exit
hostname(config)# http-map inbound_http
hostname(config-http-map)# content-length min 100 max 2000 action reset log
hostname(config-http-map)# content-type-verification match-req-rsp reset log
hostname(config-http-map)# max-header-length request bytes 100 action log reset
hostname(config-http-map)# max-uri-length 100 action reset log
hostname(config-http-map)# exit
hostname(config)# policy-map inbound_policy
hostname(config-pmap)# class http-port
hostname(config-pmap-c)# inspect http inbound_http
hostname(config-pmap-c)# exit
hostname(config-pmap)# exit
hostname(config)# service-policy inbound_policy interface outside
```

The following example causes the ASA to reset the connection and create a syslog entry when it detects any traffic that contains the following:

- Messages less than 100 bytes or exceeding 2000 bytes

- Unsupported content types
- HTTP headers exceeding 100 bytes
- URIs exceeding 100 bytes

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
debug appfw	Displays detailed information about HTTP application inspection.
debug http-map	Displays detailed information about traffic associated with an HTTP map.
http-map	Defines an HTTP map for configuring enhanced HTTP inspection.
policy-map	Associates a class map with specific security actions.

inspect icmp

To configure the ICMP inspection engine, use the **inspect icmp** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

inspect icmp

no inspect icmp

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced, replacing the **fixup** command, which has been deprecated.

Usage Guidelines

The ICMP inspection engine allows ICMP traffic to be inspected like TCP and UDP traffic. Without the ICMP inspection engine, we recommend that you do not allow ICMP through the ASA in an ACL. Without stateful inspection, ICMP can be used to attack your network. The ICMP inspection engine ensures that there is only one response for each request, and that the sequence number is correct

When ICMP inspection is disabled, which is the default configuration, ICMP echo reply messages are denied from a lower security interface to a higher security interface, even if it is in response to an ICMP echo request.

To enable ICMP inspection for all interfaces, use the **global** parameter in place of **interface outside**.

Examples

You enable the ICMP application inspection engine as shown in the following example, which creates a class map to match ICMP traffic using the ICMP protocol ID, which is 1 for IPv4 and 58 for IPv6. The service policy is then applied to the outside interface.

```
hostname(config)# class-map icmp-class
hostname(config-cmap)# match default-inspection-traffic
hostname(config-cmap)# exit
hostname(config)# policy-map icmp_policy
hostname(config-pmap)# class icmp-class
hostname(config-pmap-c)# inspect icmp
hostname(config-pmap-c)# exit
hostname(config)# service-policy icmp_policy interface outside
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
icmp	Configures access rules for ICMP traffic that terminates at an ASA interface.
policy-map	Defines a policy that associates security actions with one or more traffic classes.
service-policy	Applies a policy map to one or more interfaces.

inspect icmp error

To enable application inspection for ICMP error messages, use the **inspect icmp error** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

inspect icmp error

no inspect icmp error

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced, replacing the **fixup** command, which has been deprecated.

Usage Guidelines

Use the **inspect icmp error** command to create xlates for intermediate hops that send ICMP error messages, based on the static/NAT configuration. By default, the ASA hides the IP addresses of intermediate hops. However, using the **inspect icmp error** command makes the intermediate hop IP addresses visible. The ASA overwrites the packet with the translated IP addresses.

Cisco ASA 5500 Series software uses the egress interface address as the source address when generating ICMP error messages for path MTU discovery or hop-by-hop discovery. If you enable application inspection for ICMP error messages using the **inspect icmp error** command, NAT is also independently applied to this source address.

When enabled, the ICMP error inspection engine makes the following changes to the ICMP packet:

- In the IP Header, the NAT IP is changed to the Client IP (Destination Address and Intermediate Hop Address) and the IP checksum is modified.
- In the ICMP Header, the ICMP checksum is modified due to the changes in the ICMP packet.
- In the Payload, the following changes are made:
  - Original packet NAT IP is changed to the Client IP
  - Original packet NAT port is changed to the Client Port
  - Original packet IP checksum is recalculated

When an ICMP error message is retrieved, whether ICMP error inspection is enabled or not, the ICMP payload is scanned to retrieve the five-tuple (src ip , dest ip, src port, dest port, and ip protocol) from the original packet. A lookup is performed, using the retrieved five-tuple, to determine the original address of the client and to locate an existing session associated with the specific five-tuple. If the session is not found, the ICMP error message is dropped.

To enable ICMP error inspection for all interfaces, use the **global** parameter in place of **interface outside**.

Examples

The following example enables the ICMP error application inspection engine, which creates a class map to match ICMP traffic using the ICMP protocol ID, which is 1 for IPv4 and 58 for IPv6. The service policy is then applied to the outside interface.

```
hostname(config)# class-map icmp-class
hostname(config-cmap)# match default-inspection-traffic
hostname(config-cmap)# exit
hostname(config)# policy-map icmp_policy
hostname(config-pmap)# class icmp-class
hostname(config-pmap-c)# inspect icmp error
hostname(config-pmap-c)# exit
hostname(config)# service-policy icmp_policy interface outside
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
icmp	Configures access rules for ICMP traffic that terminates at an ASA interface.
inspect icmp	Enables or disables the ICMP inspection engine.
policy-map	Defines a policy that associates security actions with one or more traffic classes.
service-policy	Applies a policy map to one or more interfaces.

inspect ils

To enable ILS application inspection, use the **inspect ils command** in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

inspect ils

no inspect ils

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced, replacing the **fixup** command, which has been deprecated.

Usage Guidelines

The **inspect ils** command provides NAT support for Microsoft NetMeeting, SiteServer, and Active Directory products that use LDAP to exchange directory information with an ILS server.

The ASA supports NAT for ILS, which is used to register and locate endpoints in the ILS or SiteServer Directory. PAT cannot be supported because only IP addresses are stored by an LDAP database.

For search responses, when the LDAP server is located outside, NAT should be considered to allow internal peers to communicate locally while registered to external LDAP servers. For such search responses, xlates are searched first, and then DNAT entries to obtain the correct address. If both of these searches fail, then the address is not changed. For sites using NAT 0 (no NAT) and not expecting DNAT interaction, we recommend that the inspection engine be turned off to provide better performance.

Additional configuration may be necessary when the ILS server is located inside the ASA border. This would require a hole for outside clients to access the LDAP server on the specified port, typically TCP 389.

Because ILS traffic only occurs on the secondary UDP channel, the TCP connection is disconnected after the TCP inactivity interval. By default, this interval is 60 minutes and can be adjusted using the **timeout** command.

ILS/LDAP follows a client/server model with sessions handled over a single TCP connection. Depending on the client's actions, several of these sessions may be created.

During connection negotiation time, a BIND PDU is sent from the client to the server. Once a successful BIND RESPONSE from the server is received, other operational messages may be exchanged (such as ADD, DEL, SEARCH, or MODIFY) to perform operations on the ILS Directory. The ADD REQUEST and SEARCH RESPONSE PDUs may contain IP addresses of NetMeeting peers, used by H.323 (SETUP and CONNECT messages) to establish the NetMeeting sessions. Microsoft NetMeeting v2.X and v3.X provides ILS support.

The ILS inspection performs the following operations:

- Decodes the LDAP REQUEST/RESPONSE PDUs using the BER decode functions.
- Parses the LDAP packet.
- Extracts IP addresses.
- Translates IP addresses as necessary.
- Encodes the PDU with translated addresses using BER encode functions.
- Copies the newly encoded PDU back to the TCP packet.
- Performs incremental TCP checksum and sequence number adjustment.

ILS inspection has the following limitations:

- Referral requests and responses are not supported.
- Users in multiple directories are not unified.
- Single users having multiple identities in multiple directories cannot be recognized by NAT.

Note Because H.225 call signalling traffic only occurs on the secondary UDP channel, the TCP connection is disconnected after the interval specified by the TCP **timeout** command. By default, this interval is set at 60 minutes.

To enable ILS inspection for all interfaces, use the **global** parameter in place of **interface outside**.

Examples

You enable the ILS inspection engine as shown in the following example, which creates a class map to match ILS traffic on the default port (389). The service policy is then applied to the outside interface.

```
hostname(config)# class-map ils-port
hostname(config-cmap)# match port tcp eq 389
hostname(config-cmap)# exit
hostname(config)# policy-map ils_policy
hostname(config-pmap)# class ils-port
hostname(config-pmap-c)# inspect ils
hostname(config-pmap-c)# exit
hostname(config)# service-policy ils_policy interface outside
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
debug ils	Enables debugging information for ILS.
policy-map	Associates a class map with specific security actions.
service-policy	Applies a policy map to one or more interfaces.

inspect im

To enable inspection of IM traffic, use the **inspect im** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

inspect im *map_name*

no inspect im *map_name*

Syntax Description

map_name	The name of the IM map.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

The **inspect im** command enables or disables application inspection for the IM protocol.

Examples

The following example shows how to define an IM inspection policy map:

```
hostname(config)# regex loginname1 "user1\@example.com"
hostname(config)# regex loginname2 "user2\@example.com"
hostname(config)# regex loginname3 "user3\@example.com"
hostname(config)# regex loginname4 "user4\@example.com"
hostname(config)# regex yahoo_version_regex "1\.0"
hostname(config)# regex gif_files ".*\.gif"
hostname(config)# regex exe_files ".*\.exe"

hostname(config)# class-map type regex match-any yahoo_src_login_name_regex
hostname(config-cmap)# match regex loginname1
hostname(config-cmap)# match regex loginname2

hostname(config)# class-map type regex match-any yahoo_dst_login_name_regex
hostname(config-cmap)# match regex loginname3
hostname(config-cmap)# match regex loginname4

hostname(config)# class-map type inspect im match-any yahoo_file_block_list
```

```
hostname(config-cmap)# match filename regex gif_files
hostname(config-cmap)# match filename regex exe_files

hostname(config)# class-map type inspect im match-all yahoo_im_policy
hostname(config-cmap)# match login-name regex class yahoo_src_login_name_regex
hostname(config-cmap)# match peer-login-name regex class yahoo_dst_login_name_regex

hostname(config)# class-map type inspect im match-all yahoo_im_policy2
hostname(config-cmap)# match version regex yahoo_version_regex

hostname(config)# class-map im_inspect_class_map
hostname(config-cmap)# match default-inspection-traffic

hostname(config)# policy-map type inspect im im_policy_all
hostname(config-pmap)# class yahoo_file_block_list
hostname(config-pmap-c)# match service file-transfer
hostname(config-pmap)# class yahoo_im_policy
hostname(config-pmap-c)# drop-connection
hostname(config-pmap)# class yahoo_im_policy2
hostname(config-pmap-c)# reset
hostname(config)# policy-map global_policy_name
hostname(config-pmap)# class im_inspect_class_map
hostname(config-pmap-c)# inspect im im_policy_all
```

Related Commands

Commands	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.
match protocol	Matches a specific IM protocol in an inspection class or policy map.

inspect ip-options

To enable inspection of IP options in a packet, use the **inspect ip-options** command in class or policy map type inspect configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

inspect ip-options *map_name*

no inspect ip-options *map_name*

Syntax Description

map_name	The name of the IP Options map.

Defaults

This command is enabled by default the global policy.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Policy or class map configuration	•	•	•	•	—

Command History

Release	Modification
8.2(2)	This command was introduced.

Usage Guidelines

In a packet, the IP header contains the Options field. The Options field, commonly referred to as IP Options, provide for control functions that are required in some situations but unnecessary for most common communications. In particular, IP Options include provisions for time stamps, security, and special routing. Use of IP Options is optional and the field can contain zero, one, or more options.

You can configure IP Options inspection to control which IP packets with specific IP options are allowed through the ASA. Configuring this inspection instructs the ASA to allow a packet to pass or to clear the specified IP options and then allow the packet to pass.

IP Options inspection can check for the following three IP options in a packet:

- End of Options List (EOOL) or IP Option 0—This option, which contains just a single zero byte, appears at the end of all options to mark the end of a list of options. This might not coincide with the end of the header according to the header length.
- No Operation (NOP) or IP Option 1—The Options field in the IP header can contain zero, one, or more options, which makes the total length of the field variable. However, the IP header must be a multiple of 32 bits. If the number of bits of all options is not a multiple of 32 bits, the NOP option is used as “internal padding” to align the options on a 32-bit boundary.

- Router Alert (RTRALT) or IP Option 20—This option notifies transit routers to inspect the contents of the packet even when the packet is not destined for that router. This inspection is valuable when implementing RSVP and similar protocols require relatively complex processing from the routers along the packets delivery path.

You configure inspection of these three IP options by using the **parameter** command in the policy-map type inspect configuration mode. For details about the syntax of these commands, see the **eool**, **nop**, and **router-alert** command pages.

Note IP Options inspection is included by default in the global inspection policy. Therefore, the ASA allows RSVP traffic that contains packets with the Router Alert option (option 20) when the ASA is in routed mode.

Dropping RSVP packets containing the Router Alert option can cause problems in VoIP implementations.

When you configure ASA to clear the Router Alert option from IP headers, the IP header changes in the following ways:

- The Options field is padded so that the field ends on a 32 bit boundary.
- Internet header length (IHL) changes.
- The total length of the packet changes.
- The checksum is recomputed.

If an IP header contains additional options other than EOOL, NOP, or RTRALT, regardless of whether the ASA is configured to allow these options, the ASA will drop the packet.

Examples

The following example shows how to define an IP Options inspection policy map that allows the ASA to pass packets that contain the EOOL, NOP, and RTRALT options in the packet header.

```
hostname(config)# policy-map type inspect ip-options ip-options-map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# eool action allow
hostname(config-pmap-p)# nop action allow
hostname(config-pmap-p)# router-alert action allow
```

Entering the **clear** command clears the IP option from the packet before allowing the packet through the ASA.

Related Commands

Commands	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.

inspect ipsec-pass-thru

To enable IPsec pass-through inspection, use the **inspect ipsec-pass-thru** command in class map configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

inspect ipsec-pass-thru [*map_name*]

no inspect ipsec-pass-thru [*map_name*]

Syntax Description

map_name	(Optional) The name of the IPsec pass-through map.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **inspect ipsec-pass-thru** command enables or disables application inspection. IPsec pass-through application inspection provides convenient traversal of ESP (IP protocol 50) and/or AH (IP protocol 51) traffic associated with an IKE UDP port 500 connection. It avoids lengthy access list configuration to permit ESP and AH traffic and also provides security using timeout and maximum connections.

Use the IPsec pass-through parameter map to identify a specific map to use for defining the parameters for the inspection. Use the **policy-map type inspect** command to access the parameters configuration, which lets you specify the restrictions for ESP or AH traffic. You can set the per-client maximum connections and the idle timeout in parameters configuration mode.

Use the **class-map**, **policy-map**, and **service-policy** commands to define a class of traffic, to apply the **inspect** command to the class, and to apply the policy to one or more interfaces. The parameter map defined is enabled when used with the **inspect ipsec-pass-thru** command.

NAT and non-NAT traffic is permitted. However, PAT is not supported.

Note In ASA 7.0(1), the **inspect ipsec-pass-thru** command allowed only ESP traffic to pass through. To retain the same behavior in later versions, a default map that permits ESP is created and attached if the **inspect ipsec-pass-thru** command is specified without any arguments. This map can be seen in the output of the **show running-config all** command.

Examples

The following example shows how to use access lists to identify IKE traffic, define an IPsec pass-through parameter map, define a policy, and apply the policy to the outside interface:

```
hostname(config)# access-list ipsecpassthruacl permit udp any any eq 500
hostname(config)# class-map ipsecpassthru-traffic
hostname(config-cmap)# match access-list ipsecpassthruacl
hostname(config)# policy-map type inspect ipsec-pass-thru iptmap
hostname(config-pmap)# parameters
hostname(config-pmap-p)# esp per-client-max 10 timeout 0:11:00
hostname(config-pmap-p)# ah per-client-max 5 timeout 0:06:00
hostname(config)# policy-map inspection_policy
hostname(config-pmap)# class ipsecpassthru-traffic
hostname(config-pmap-c)# inspect ipsec-pass-thru iptmap
hostname(config)# service-policy inspection_policy interface outside
```

Related Commands

Commands	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.
match protocol	Matches a specific IM protocol in an inspection class or policy map.

inspect ipv6

To enable IPv6 inspection, use the **inspect ipv6** command in class configuration mode. Class configuration mode is accessible from policy-map configuration mode. To remove the configuration, use the **no** form of this command.

inspect ipv6 [*map_name*]

no inspect ipv6 [*map_name*]

Syntax Description

map_name	The name of the IPv6 inspection policy map.

Defaults

IPv6 inspection is disabled by default. If you enable IPv6 inspection and do not specify an inspection policy map, then the default IPv6 inspection policy map is used, and the following actions are taken:

- Allows only known IPv6 extension headers
- Enforces the order of IPv6 extension headers as defined in the RFC 2460 specification

If you create an inspection policy map, the above actions are taken by default unless you explicitly disable them.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

IPv6 inspection lets you selectively log or drop IPv6 traffic based on the extension header. In addition, IPv6 inspection can check conformance to RFC 2460 for type and order of extension headers in IPv6 packets.

Examples

The following example drops all IPv6 traffic with the hop-by-hop, destination-option, routing-address, and routing type 0 headers:

```
policy-map type inspect ipv6 ipv6-pm
 parameters
 match header hop-by-hop
  drop
 match header destination-option
  drop
```

```
 match header routing-address count gt 0
  drop
 match header routing-type eq 0
  drop
policy-map global_policy
 class class-default
  inspect ipv6 ipv6-pm
!
service-policy global_policy global
```

Related Commands

Commands	Description
class	Identifies a class map name in the policy map.
match header	Matches IPv6 headers in an IPv6 inspection policy map.
policy-map type inspect ipv6	Creates an inspection class map to match traffic specific to IPv6.
policy-map	Creates a Layer 3/4 policy map.
verify-header	Configures IPv6 inspection parameters.

inspect mgcp

To enable MGCP application inspection or to change the ports to which the ASA listens, use the **inspect mgcp** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

inspect mgcp [*map_name*]

no inspect mgcp [*map_name*]

Syntax Description

map_name	(Optional) The name of the MGCP map.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced, replacing the **fixup** command, which has been deprecated.

Usage Guidelines

To use MGCP, you usually need to configure at least two **inspect** commands: one for the port on which the gateway receives commands, and one for the port on which the Call Agent receives commands. Normally, a Call Agent sends commands to the default MGCP port for gateways, 2427, and a gateway sends commands to the default MGCP port for Call Agents, 2727.

MGCP is used for controlling media gateways from external call control elements called media gateway controllers or call agents. A media gateway is typically a network element that provides conversion between the audio signals carried on telephone circuits and data packets carried over the Internet or over other packet networks. Using NAT and PAT with MGCP lets you support a large number of devices on an internal network with a limited set of external (global) addresses.

Examples of media gateways are:

- Trunking gateways, that interface between the telephone network and a Voice over IP network. Such gateways typically manage a large number of digital circuits.
- Residential gateways, that provide a traditional analog (RJ11) interface to a Voice over IP network. Examples of residential gateways include cable modem/cable set-top boxes, xDSL devices, and broad-band wireless devices.

- Business gateways, that provide a traditional digital PBX interface or an integrated soft PBX interface to a Voice over IP network.

MGCP messages are transmitted over UDP. A response is sent back to the source address (IP address and UDP port number) of the command, but the response may not arrive from the same address as the command was sent to. This can happen when multiple call agents are being used in a failover configuration and the call agent that received the command has passed control to a backup call agent, which then sends the response.

Note MGCP call agents send AUEP messages to determine if MGCP end points are present. This establishes a flow through the ASA and allows MGCP end points to register with the call agent.

Use the **call-agent** and **gateway** commands in MGCP map configuration mode to configure the IP addresses of one or more call agents and gateways. Use the **command-queue** command in MGCP map configuration mode to specify the maximum number of MGCP commands that will be allowed in the command queue at one time.

Inspecting Signaling Messages

For inspecting signaling messages, the **inspect mgcp** command often needs to determine locations of the media endpoints (for example, IP phones).

This information is used to prepare access-control and NAT state for media traffic to traverse the firewall transparently without manual configuration.

In determining these locations, the **inspect mgcp** command does **not** use the tunnel default gateway route. A tunnel default gateway route is a route of the form **route** *interface* **0 0** *metric* **tunneled**. This route overrides the default route for packets that egress from IPsec tunnels. Therefore, if the **inspect mgcp** command is desired for VPN traffic, do not configure the tunnel default gateway route. Instead, use other static routing or dynamic routing.

To enable MGCP inspection for all interfaces, use the **global** parameter in place of **interface outside**.

The maximum number of MGCP commands that can be queued is 150.

Examples

The following example shows how to identify MGCP traffic, define a MGCP map, define a policy, and apply the policy to the outside interface. This creates a class map to match MGCP traffic on the default ports (2427 and 2727). The service policy is then applied to the outside interface. This configuration allows call agents 10.10.11.5 and 10.10.11.6 to control gateway 10.10.10.115, and allows call agents 10.10.11.7 and 10.10.11.8 to control both gateways 10.10.10.116 and 10.10.10.117.

```
hostname(config)# access-list mgcp_acl permit tcp any any eq 2427
hostname(config)# access-list mgcp_acl permit tcp any any eq 2727
hostname(config)# class-map mgcp_port
hostname(config-cmap)# match access-list mgcp_acl
hostname(config-cmap)# exit
hostname(config)# mgcp-map inbound_mgcp
hostname(config-mgcp-map)# call-agent 10.10.11.5 101
hostname(config-mgcp-map)# call-agent 10.10.11.6 101
hostname(config-mgcp-map)# call-agent 10.10.11.7 102
hostname(config-mgcp-map)# call-agent 10.10.11.8 102
hostname(config-mgcp-map)# gateway 10.10.10.115 101
hostname(config-mgcp-map)# gateway 10.10.10.116 102
hostname(config-mgcp-map)# gateway 10.10.10.117 102
hostname(config-mgcp-map)# command-queue 150
hostname(config-mgcp-map)# exit
hostname(config)# policy-map inbound_policy
```

```
hostname(config-pmap)# class mgcp_port
hostname(config-pmap-c)# inspect mgcp mgcp-map inbound_mgcp
hostname(config-pmap-c)# exit
hostname(config)# service-policy inbound_policy interface outside
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
debug mgcp	Enables MGCP debugging information.
mgcp-map	Defines an MGCP map and enables mgcp map configuration mode.
show mgcp	Displays information about MGCP sessions established through the ASA.
timeout	Sets the maximum idle time duration for different protocols and session types.

inspect mmp

To configure the MMP inspection engine, use the **inspect mmp** command in class configuration mode. To remove MMP inspection, use the **no** form of this command.

inspect mmp tls-proxy [*name*]

no inspect mmp tls-proxy [*name*]

Syntax Description

name	Species the TLS proxy instance name.
tls-proxy	Enables the TLS proxy for MMP inspection. The MMP protocol can additionally use the TCP transport; however, the CUMA client only supports the TLS transport. Therefore, the **tls-proxy** keyword is required to enable MMP inspection.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
8.0(4)	The command was introduced.

Usage Guidelines

The ASA includes an inspection engine to validate the CUMA Mobile Multiplexing Protocol (MMP). MMP is a data transport protocol for transmitting data entities between CUMA clients and servers. Use the **inspect mmp** command when the ASA is deployed between CUMA clients and servers and inspection of MMP packets is required.

MMP inspection must be enabled with the TLS proxy because MMP traffic is transported only over a TLS connection.

Note While configuring the MMP inspection engine, please note that it can only be added under a non-deafult inspection class. If you attempt to add the inspect mmp <tls-proxy> command under the default inspection class, it will generate an error.

Examples

The following example shows the use of the **inspect mmp** command to inspect MMP traffic:

```
hostname(config)# class-map mmp
```

```
hostname(config-cmap)# match port tcp eq 5443
hostname(config-cmap)# exit
hostname(config)# policy-map mmp-policy
hostname(config-pmap)# class mmp
hostname(config-pmap-c)# inspect mmp tls-proxy myproxy
hostname(config-pmap-c)# exit
hostname(config-pmap)# exit
hostname(config)# service-policy mmp-policy interface outside
```

Related Commands

Command	Description
tls-proxy	Configures the TLS proxy instance.
debug mmp	Displays inspect MMP events.

inspect netbios

To enable NetBIOS application inspection or to change the ports to which the ASA listens, use the **inspect netbios command** in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

inspect netbios [*map_name*]

no inspect netbios [*map_name*]

Syntax Description

map_name	(Optional) The name of the NetBIOS map.

Defaults

This command is enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Class configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced, replacing the **fixup** command, which has been deprecated.

Usage Guidelines

The **inspect netbios** command enables or disables application inspection for the NetBIOS protocol.

Examples

The following example shows how to define a NetBIOS inspection policy map:

```
hostname(config)# policy-map type inspect netbios netbios_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# protocol-violation drop
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
policy-map	Associates a class map with specific security actions.
service-policy	Applies a policy map to one or more interfaces.

inspect pptp

To enable PPTP application inspection or to change the ports to which the ASA listens, use the **inspect pptp** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

inspect pptp

no inspect pptp

Syntax Description

This command has no arguments or keywords.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced, replacing the **fixup** command, which has been deprecated.

Usage Guidelines

The Point-to-Point Tunneling Protocol (PPTP) is a protocol for tunneling PPP traffic. A PPTP session is composed of one TCP channel and usually two PPTP GRE tunnels. The TCP channel is the control channel used for negotiating and managing the PPTP GRE tunnels. The GRE tunnels carries PPP sessions between the two hosts.

When enabled, PPTP application inspection inspects PPTP protocol packets and dynamically creates the GRE connections and xlates necessary to permit PPTP traffic. Only Version 1, as defined in RFC 2637, is supported.

PAT is only performed for the modified version of GRE [RFC 2637] when negotiated over the PPTP TCP control channel. Port Address Translation is *not* performed for the unmodified version of GRE [RFC 1701, RFC 1702].

Specifically, the ASA inspects the PPTP version announcements and the outgoing call request/response sequence. Only PPTP Version 1, as defined in RFC 2637, is inspected. Further inspection on the TCP control channel is disabled if the version announced by either side is not Version 1. In addition, the outgoing-call request and reply sequence are tracked. Connections and xlates are dynamic allocated as necessary to permit subsequent secondary GRE data traffic.

The PPTP inspection engine must be enabled for PPTP traffic to be translated by PAT. Additionally, PAT is only performed for a modified version of GRE (RFC2637) and only if it is negotiated over the PPTP TCP control channel. PAT is not performed for the unmodified version of GRE (RFC 1701 and RFC 1702).

As described in RFC 2637, the PPTP protocol is mainly used for the tunneling of PPP sessions initiated from a modem bank PAC (PPTP Access Concentrator) to the headend PNS (PPTP Network Server). When used this way, the PAC is the remote client and the PNS is the server.

However, when used for VPN by Windows, the interaction is inverted. The PNS is a remote single-user PC that initiates connection to the head-end PAC to gain access to a central network.

To enable PPTP inspection for all interfaces, use the **global** parameter in place of **interface outside**.

Examples

You enable the PPTP inspection engine as shown in the following example, which creates a class map to match PPTP traffic on the default port (1723). The service policy is then applied to the outside interface.

```
hostname(config)# class-map pptp-port
hostname(config-cmap)# match port tcp eq 1723
hostname(config-cmap)# exit
hostname(config)# policy-map pptp_policy
hostname(config-pmap)# class pptp-port
hostname(config-pmap-c)# inspect pptp
hostname(config-pmap-c)# exit
hostname(config)# service-policy pptp_policy interface outside
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
debug pptp	Enables debugging information for PPTP.
policy-map	Associates a class map with specific security actions.
service-policy	Applies a policy map to one or more interfaces.

inspect radius-accouting

To enable or disable RADIUS accounting inspection or to define a map for controlling traffic or tunnels, use the **inspect radius-accounting** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

inspect radius-accounting [*map_name*]

no inspect radius-accounting [*map_name*]

Syntax Description

map_name	(Optional) Name for the RADIUS accounting map.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

Use the **radius-accounting** command to create a specific map to use for defining the parameters for RADIUS accounting. When you enter this command, the system enters a configuration mode that lets you enter the different commands used for defining the specific map. The actions that you can specify for messages that fail the criteria set using the different configuration commands include **send**, **host**, **validate-attribute**, **enable gprs**, and **timeout users**. You can access these commands from **parameter** mode.

After defining the RADIUS accounting map, you use the **inspect gtp** command to enable the map. Then you use the **class-map**, **policy-map**, and **service-policy** commands to define a class of traffic, to apply the **inspect** command to the class, and to apply the policy to one or more interfaces.

Note The **inspect radius-accounting** command can only be used with the **class-map type management** command.

Examples

The following example shows how to use access lists to identify RADIUS accounting traffic, define a RADIUS accounting map, define a policy, and apply the policy to the outside interface:

```
hostname(config)# policy-map type inspect radius-accountin ra
```

Note This example enables RADIUS accounting inspection with the default values. To change the default values, see the **parameters** command and each command that is entered from RADIUS accounting configuration mode.

Related Commands

Commands	Description
parameters	Defines the traffic class to which to apply security actions.
class-map type management	Lets you identify Layer 3 or 4 management traffic destined for the ASA to which you want to apply actions.
show and **clear service-policy**	Lets you view and clear service policy settings.
debug inspect radius-accounting	Lets you debug RADIUS accounting inspection.
service-policy	Applies a policy map to one or more interfaces.

inspect rsh

To enable RSH application inspection or to change the ports to which the ASA listens, use the **inspect rsh** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

inspect rsh

no inspect rsh

Syntax Description

This command has no arguments or keywords.

Defaults

This command is enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced, replacing the **fixup** command, which has been deprecated.

Usage Guidelines

The RSH protocol uses a TCP connection from the RSH client to the RSH server on TCP port 514. The client and server negotiate the TCP port number where the client listens for the STDERR output stream. RSH inspection supports NAT of the negotiated port number if necessary.

To enable RSH inspection for all interfaces, use the **global** parameter in place of **interface outside**.

Examples

The following example enables the RSH inspection engine, which creates a class map to match RSH traffic on the default port (514). The service policy is then applied to the outside interface.

```
hostname(config)# class-map rsh-port
hostname(config-cmap)# match port tcp eq 514
hostname(config-cmap)# exit
hostname(config)# policy-map rsh_policy
hostname(config-pmap)# class rsh-port
hostname(config-pmap-c)# inspect rsh
hostname(config-pmap-c)# exit
hostname(config)# service-policy rsh_policy interface outside
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
policy-map	Associates a class map with specific security actions.
service-policy	Applies a policy map to one or more interfaces.

inspect rtsp

To enable RTSP application inspection or to change the ports to which the ASA listens, use the **inspect rtsp** command in class configuration mode. Class configuration mode is accessible from policy-map configuration mode. To remove the configuration, use the **no** form of this command.

inspect rtsp [*map_name*]

no inspect rtsp [*map_name*]

Syntax Description

map_name	(Optional) The name of the RTSP map.

Defaults

This command is enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced, replacing the **fixup** command, which has been deprecated.

Usage Guidelines

The **inspect rtsp** command lets the ASA pass RTSP packets. RTSP is used by RealAudio, RealNetworks, Apple QuickTime 4, RealPlayer, and Cisco IP/TV connections.

Note For Cisco IP/TV, use RTSP TCP port 554 and TCP 8554.

RTSP applications use the well-known port 554 with TCP (rarely UDP) as a control channel. The ASA only supports TCP, in conformity with RFC 2326. This TCP control channel is used to negotiate the data channels that will be used to transmit audio/video traffic, depending on the transport mode that is configured on the client.

The supported RDT transports are: rtp/avp, rtp/avp/udp, x-real-rdt, x-real-rdt/udp, and x-pn-tng/udp.

The ASA parses setup response messages with a status code of 200. If the response message is traveling inbound, the server is outside relative to the ASA and dynamic channels need to be opened for connections coming inbound from the server. If the response message is outbound, then the ASA does not need to open dynamic channels.

Because RFC 2326 does not require that the client and server ports must be in the setup response message, the ASA will need to keep state and remember the client ports in the setup message. QuickTime places the client ports in the setup message and then the server responds with only the server ports.

Using RealPlayer

When using RealPlayer, it is important to properly configure transport mode. For the ASA, add an **access-list** command statement from the server to the client or vice versa. For RealPlayer, change transport mode by choosing **Options > Preferences > Transport > RTSP Settings**.

If using TCP mode on the RealPlayer, check the **Use TCP to Connect to Server** and **Attempt to use TCP for all content** check boxes. On the ASA, there is no need to configure the inspection engine.

If using UDP mode on the RealPlayer, check the **Use TCP to Connect to Server** and **Attempt to use UDP for static content** check boxes, and for live content not available via Multicast. On the ASA, add a **inspect rtsp** *port* command statement.

Restrictions and Limitations

The following restrictions apply to the **inspect rtsp** command:

- The ASA does not support multicast RTSP or RTSP messages over UDP.
- The ASA does not have the ability to recognize HTTP cloaking where RTSP messages are hidden in the HTTP messages.
- The ASA cannot perform NAT on RTSP messages because the embedded IP addresses are contained in the SDP files as part of HTTP or RTSP messages. Packets could be fragmented and the ASA cannot perform NAT on fragmented packets.
- With Cisco IP/TV, the number of NATs the ASA performs on the SDP part of the message is proportional to the number of program listings in the Content Manager (each program listing can have at least six embedded IP addresses).
- You can configure NAT for Apple QuickTime 4 or RealPlayer. Cisco IP/TV only works with NAT if the Viewer and Content Manager are on the outside network and the server is on the inside network.
- Media streams delivered over HTTP are not supported by RTSP application inspection. This is because RTSP inspection does not support HTTP cloaking (RTSP wrapped in HTTP).
- To enable RTSP inspection for all interfaces, use the **global** parameter in place of **interface outside**.

Examples

The following example enables the RTSP inspection engine, which creates a class map to match RTSP traffic on the default ports (554 and 8554). The service policy is then applied to the outside interface.

```
hostname(config)# access-list rtsp-acl permit tcp any any eq 554
hostname(config)# access-list rtsp-acl permit tcp any any eq 8554
hostname(config)# class-map rtsp-traffic
hostname(config-cmap)# match access-list rtsp-acl
hostname(config-cmap)# exit
hostname(config)# policy-map rtsp_policy
hostname(config-pmap)# class rtsp-traffic
hostname(config-pmap-c)# inspect rtsp
hostname(config-pmap-c)# exit
hostname(config)# service-policy rtsp_policy interface outside
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
debug rtsp	Enables debugging information for RTSP.
policy-map	Associates a class map with specific security actions.
service-policy	Applies a policy map to one or more interfaces.

inspect scansafe

To enables Cloud Web Security inspection on the traffic in a class, use the **inspect scansafe** command in class configuration mode. You can access the class configuration mode by first entering the **policy-map** command. To remove the inspect action, use the **no** form of this command.

inspect scansafe *scansafe_policy_name* [**fail-open** | **fail-close**]

no inspect scansafe *scansafe_policy_name* [**fail-open** | **fail-close**]

Syntax Description

scansafe_policy_name	Specifies the inspection class map name defined by the **policy-map type inspect scansafe** command.
fail-open	(Optional) Allows traffic to pass through the ASA if the Cloud Web Security servers are unavailable.
fail-close	(Optional) Drops all traffic if the Cloud Web Security servers are unavailable. **fail-close** is the default.

Command Default

fail-close is the default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

Cisco Cloud Web Security provides web security and web filtering services through the Software-as-a-Service (SaaS) model. Enterprises with the ASA in their network can use Cloud Web Security services without having to install additional hardware.

Note This feature is also called “ScanSafe,” so the ScanSafe name appears in some commands.

Configure this command using Modular Policy Framework:

1. Create inspection policy maps using the **policy-map type inspect scansafe** command, at least one for HTTP and one for HTTPS (assuming you want to inspect both types of traffic).
2. (Optional) Configure a whitelist using the **class-map type inspect scansafe** command.

3. Define the traffic that you want to inspect using the **class-map** command. You must configure separate class maps for HTTP and HTTPS traffic.
4. Enter the **policy-map** command to define the policy.
5. For HTTP, enter the **class** command to reference the HTTP class map.
6. Enter the **inspect scansafe** command, referencing the HTTP inspection policy map.
7. For HTTPS, enter the **class** command to reference the HTTPS class map.
8. Enter the **inspect scansafe** command, referencing the HTTPS inspection policy map.
9. Finally, apply the policy map to an interface using the **service-policy** command.

For more information about how Modular Policy Framework works, see the CLI configuration guide.

Examples

The following example configures two classes: one for HTTP and one for HTTPS. Each ACL exempts traffic to www.cisco.com and to tools.cisco.com, and to the DMZ network, for both HTTP and HTTPS. All other traffic is sent to Cloud Web Security, except for traffic from several whitelisted users and groups. The policy is then applied to the inside interface.

```
hostname(config)# class-map type inspect scansafe match-any whitelist1
hostname(config-cmap)# match user user1 group cisco
hostname(config-cmap)# match user user2
hostname(config-cmap)# match group group1
hostname(config-cmap)# match user user3 group group3

hostname(config)# policy-map type inspect scansafe cws_inspect_pmap1
hostname(config-pmap)# parameters
hostname(config-pmap-p)# http
hostname(config-pmap-p)# default group default_group
hostname(config-pmap-p)# class whitelist1
hostname(config-pmap-c)# whitelist

hostname(config)# policy-map type inspect scansafe cws_inspect_pmap2
hostname(config-pmap)# parameters
hostname(config-pmap-p)# https
hostname(config-pmap-p)# default group2 default_group2
hostname(config-pmap-p)# class whitelist1
hostname(config-pmap-c)# whitelist

hostname(config)# object network cisco1
hostname(config-object-network)# fqdn www.cisco.com
hostname(config)# object network cisco2
hostname(config-object-network)# fqdn tools.cisco.com
hostname(config)# object network dmz_network
hostname(config-object-network)# subnet 10.1.1.0 255.255.255.0

hostname(config)# access-list SCANSAFE_HTTP extended deny tcp any4 object cisco1 eq 80
hostname(config)# access-list SCANSAFE_HTTP extended deny tcp any4 object cisco2 eq 80
hostname(config)# access-list SCANSAFE_HTTP extended deny tcp any4 object dmz_network eq
80
hostname(config)# access-list SCANSAFE_HTTP extended permit tcp any4 any4 eq 80

hostname(config)# access-list SCANSAFE_HTTPS extended deny tcp any4 object cisco1 eq 443
hostname(config)# access-list SCANSAFE_HTTPS extended deny tcp any4 object cisco2 eq 443
hostname(config)# access-list SCANSAFE_HTTP extended deny tcp any4 object dmz_network eq
443
hostname(config)# access-list SCANSAFE_HTTPS extended permit tcp any4 any4 eq 443

hostname(config)# class-map cws_class1
hostname(config-cmap)# match access-list SCANSAFE_HTTP
```

```
hostname(config)# class-map cws_class2
hostname(config-cmap)# match access-list SCANSAFE_HTTPS

hostname(config)# policy-map cws_policy
hostname(config-pmap)# class cws_class1
hostname(config-pmap-c)# inspect scansafe cws_inspect_pmap1 fail-open
hostname(config-pmap)# class cws_class2
hostname(config-pmap-c)# inspect scansafe cws_inspect_pmap2 fail-open
hostname(config)# service-policy cws_policy inside
```

Related Commands

Command	Description
class-map type inspect scansafe	Creates an inspection class map for whitelisted users and groups.
default user group	Specifies the default username and/or group if the ASA cannot determine the identity of the user coming into the ASA.
http[**s**] (parameters)	Specifies the service type for the inspection policy map, either HTTP or HTTPS.
license	Configures the authentication key that the ASA sends to the Cloud Web Security proxy servers to indicate from which organization the request comes.
match user group	Matches a user or group for a whitelist.
policy-map type inspect scansafe	Creates an inspection policy map so you can configure essential parameters for the rule and also optionally identify the whitelist.
retry-count	Enters the retry counter value, which is the amount of time that the ASA waits before polling the Cloud Web Security proxy server to check its availability.
scansafe	In multiple context mode, allows Cloud Web Security per context.
scansafe general-options	Configures general Cloud Web Security server options.
server {**primary** | **backup**}	Configures the fully qualified domain name or IP address of the primary or backup Cloud Web Security proxy servers.
show conn scansafe	Shows all Cloud Web Security connections, as noted by the capitol Z flag.
show scansafe server	Shows the status of the server, whether it's the current active server, the backup server, or unreachable.
show scansafe statistics	Shows total and current http connections.
user-identity monitor	Downloads the specified user or group information from the AD agent.
whitelist	Performs the whitelist action on the class of traffic.

inspect sip

To enable SIP application inspection or to change the ports to which the ASA listens, use the **inspect sip** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

inspect sip [*sip_map*] [**tls-proxy** *proxy_name*] [**phone-proxy** *proxy_name*] [**uc-ime** *proxy_name*]

no inspect sip [*sip_map*] [**tls-proxy** *proxy_name*] [**phone-proxy** *proxy_name*] [**uc-ime** *proxy_name*]

Syntax Description

phone-proxy *proxy_name*	Enables the phone proxy for the specified inspection session.
sip_map	Specifies a SIP policy map name.
tls-proxy *proxy_name*	Enables TLS proxy for the specified inspection session. The keyword **tls-proxy** cannot be used as a Layer 7 policy map name.
uc-ime *proxy_name*	Enable the Cisco Intercompany Media Engine Proxy for SIP inspection.

Defaults

This command is enabled by default.

The default port assignment for SIP is 5060.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
8.0(2)	The **tls-proxy** keyword was added.
7.0(1)	This command was introduced, replacing the **fixup** command, which has been deprecated.

Usage Guidelines

SIP, as defined by the IETF, enables VoIP calls. SIP works with SDP for call signaling. SDP specifies the details of the media stream. Using SIP, the ASA can support any SIP Voice over IP (VoIP) gateways and VoIP proxy servers. SIP and SDP are defined in the following RFCs:

- SIP: Session Initiation Protocol, RFC 2543
- SDP: Session Description Protocol, RFC 2327

To support SIP calls through the ASA, signaling messages for the media connection addresses, media ports, and embryonic connections for the media must be inspected, because while the signaling is sent over a well-known destination port (UDP/TCP 5060), the media streams are dynamically allocated. Also, SIP embeds IP addresses in the user-data portion of the IP packet. SIP inspection applies NAT for these embedded IP addresses.

Note If a remote endpoint tries to register with a SIP proxy on a network protected by the security appliance, the registration will fail under very specific conditions. These conditions are when PAT is configured for the remote endpoint, the SIP registrar server is on the outside network, and when the port is missing in the contact field in the REGISTER message sent by the endpoint to the proxy server.

Instant Messaging

Instant Messaging refers to the transfer of messages between users in near real-time. The MESSAGE/INFO methods and 202 Accept response are used to support IM as defined in the following RFCs:

- Session Initiation Protocol (SIP)-Specific Event Notification, RFC 3265
- Session Initiation Protocol (SIP) Extension for Instant Messaging, RFC 3428

MESSAGE/INFO requests can come in at any time after registration/subscription. For example, two users can be online at any time, but not chat for hours. Therefore, the SIP inspection engine opens pinholes, which will time out according to the configured SIP timeout value. This value must be configured at least five minutes longer than the subscription duration. The subscription duration is defined in the Contact Expires value and is typically 30 minutes.

Because MESSAGE/INFO requests are typically sent using a dynamically allocated port other than port 5060, they are required to go through the SIP inspection engine.

Note Only the Chat feature is currently supported. Whiteboard, File Transfer, and Application Sharing are not supported. RTC Client 5.0 is not supported.

Technical Details

SIP inspection NATs the SIP text-based messages, recalculates the content length for the SDP portion of the message, and recalculates the packet length and checksum. It dynamically opens media connections for ports specified in the SDP portion of the SIP message as address/ports on which the endpoint should listen.

SIP inspection has a database with indices CALL_ID/FROM/TO from the SIP payload that identifies the call, as well as the source and destination. Contained within this database are the media addresses and media ports that were contained in the SDP media information fields and the media type. There can be multiple media addresses and ports for a session. RTP/RTCP connections are opened between the two endpoints using these media addresses/ports.

The well-known port 5060 must be used on the initial call setup (INVITE) message. However, subsequent messages may not have this port number. The SIP inspection engine opens signaling connection pinholes, and marks these connections as SIP connections. This is done for the messages to reach the SIP application and be NATed.

As a call is set up, the SIP session is considered in the “transient” state. This state remains until a Response message is received indicating the RTP media address and port on which the destination endpoint is listening. If there is a failure to receive the response messages within one minute, the signaling connection will be torn down.

Once the final handshake is made, the call state is moved to active and the signaling connection will remain until a BYE message is received.

If an inside endpoint initiates a call to an outside endpoint, a media hole is opened to the outside interface to allow RTP/RTCP UDP packets to flow to the inside endpoint media address and media port specified in the INVITE message from the inside endpoint. Unsolicited RTP/RTCP UDP packets to an inside interface will not traverse the ASA, unless the ASA configuration specifically allows it.

The media connections are torn down within two minutes after the connection becomes idle. This is, however, a configurable timeout and can be set for a shorter or longer period of time.

Inspecting Signaling Messages

For inspecting signaling messages, the **inspect sip** command often needs to determine locations of the media endpoints (for example, IP phones).

This information is used to prepare access-control and NAT state for media traffic to traverse the firewall transparently without manual configuration.

In determining these locations, the **inspect sip** command does **not** use the tunnel default gateway route. A tunnel default gateway route is a route of the form **route** *interface* **0 0** *metric* **tunneled**. This route overrides the default route for packets that egress from IPsec tunnels. Therefore, if the **inspect sip** command is desired for VPN traffic, do not configure the tunnel default gateway route. Instead, use other static routing or dynamic routing.

To enable SIP inspection for all interfaces, use the **global** parameter in place of **interface outside**.

Examples

The following example enables the SIP inspection engine, which creates a class map to match SIP traffic on the default port (5060). The service policy is then applied to the outside interface.

```
hostname(config)# class-map sip-port
hostname(config-cmap)# match port tcp eq 5060
hostname(config-cmap)# exit
hostname(config)# policy-map sip_policy
hostname(config-pmap)# class sip-port
hostname(config-pmap-c)# inspect sip
hostname(config-pmap-c)# exit
hostname(config)# service-policy sip_policy interface outside
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
show sip	Displays information about SIP sessions established through the ASA.
debug sip	Enables debugging information for SIP.
show conn	Displays the connection state for different connection types.
timeout	Sets the maximum idle time duration for different protocols and session types.
tls-proxy	Defines a TLS proxy instance and sets the maximum sessions.

inspect skinny

T o enable SCCP (Skinny) application inspection or to change the ports to which the ASA listens, use the **inspect skinny** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

inspect skinny [*skinny_map*] [**tls-proxy** *proxy_name*] [**phone-proxy** *proxy_name*]

no inspect skinny [*skinny_map*] [**tls-proxy** *proxy_name*] [**phone-proxy** *proxy_name*]

Syntax Description

phone-proxy *proxy_name*	Enables the phone proxy for the specified inspection session.
skinny_map	Specifies a skinny policy map name.
tls-proxy *proxy_name*	Enables TLS proxy for the specified inspection session. The keyword **tls-proxy** cannot be used as a Layer 7 policy map name.

Defaults

This command is enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
8.0(2)	The keyword **tls-proxy** was added.
7.0(1)	This command was introduced, replacing the **fixup** command, which has been deprecated.

Usage Guidelines

Skinny (or Simple) Client Control Protocol (SCCP) is a simplified protocol used in VoIP networks. Cisco IP Phones using SCCP can coexist in an H.323 environment. When used with Cisco CallManager, the SCCP client can interoperate with H.323-compliant terminals. Application layer functions in the ASA recognize SCCP Version 3.3. The functionality of the application layer software ensures that all SCCP signaling and media packets can traverse the ASA by providing NAT of the SCCP Signaling packets.

There are 5 versions of the SCCP protocol: 2.4, 3.0.4, 3.1.1, 3.2, and 3.3.2. The ASA supports all versions through Version 3.3.2. The ASA provides both PAT and NAT support for SCCP. PAT is necessary if you have limited numbers of global IP addresses for use by IP phones.

Normal traffic between the Cisco CallManager and Cisco IP Phones uses SCCP and is handled by SCCP inspection without any special configuration.The ASA also supports DHCP options 150 and 66, which allow the ASA to send the location of a TFTP server to Cisco IP Phones and other DHCP clients. For more information, see the **dhcp-server** command.

Supporting Cisco IP Phones

In topologies where Cisco CallManager is located on the higher security interface with respect to the Cisco IP Phones, if NAT is required for the Cisco CallManager IP address, the mapping must be static, because a Cisco IP Phone requires the Cisco CallManager IP address to be specified explicitly in its configuration. An identity static entry allows the Cisco CallManager on the higher security interface to accept registrations from the Cisco IP Phones.

Cisco IP Phones require access to a TFTP server to download the configuration information they need to connect to the Cisco CallManager server.

When the Cisco IP Phones are on a lower security interface compared to the TFTP server, you must use an access list to connect to the protected TFTP server on UDP port 69. While you do need a static entry for the TFTP server, this does not have to be an identity static entry. When using NAT, an identity static entry maps to the same IP address. When using PAT, it maps to the same IP address and port.

When the Cisco IP Phones are on a higher security interface compared to the TFTP server and Cisco CallManager, no access list or static entry is required to allow the Cisco IP Phones to initiate the connection.

Restrictions and Limitations

The following are limitations that apply to the current version of PAT and NAT support for SCCP:

- PAT will not work with configurations using the **alias** command.
- Outside NAT or PAT is not supported.

Note Stateful Failover of SCCP calls is supported, except for calls that are in the middle of call setup.

If the address of an internal Cisco CallManager is configured for NAT or PAT to a different IP address or port, registrations for external Cisco IP Phones will fail because the ASA currently does not support NAT or PAT for the file content transferred via TFTP. Although the ASA does support NAT of TFTP messages, and opens a pinhole for the TFTP file to traverse the ASA, the ASA cannot translate the Cisco CallManager IP address and port embedded in the Cisco IP Phone's configuration files that are being transferred using TFTP during phone registration.

Inspecting Signaling Messages

For inspecting signaling messages, the **inspect skinny** command often needs to determine locations of the media endpoints (for example, IP phones).

This information is used to prepare access-control and NAT state for media traffic to traverse the firewall transparently without manual configuration.

In determining these locations, the **inspect skinny** command does **not** use the tunnel default gateway route. A tunnel default gateway route is a route of the form **route** *interface* **0 0** *metric* **tunneled**. This route overrides the default route for packets that egress from IPsec tunnels. Therefore, if the **inspect skinny** command is desired for VPN traffic, do not configure the tunnel default gateway route. Instead, use other static routing or dynamic routing.

To enable SCCP inspection for all interfaces, use the **global** parameter in place of **interface outside**.

Examples

The following example enables the SCCP inspection engine, which creates a class map to match SCCP traffic on the default port (2000). The service policy is then applied to the outside interface.

```
hostname(config)# class-map skinny-port
hostname(config-cmap)# match port tcp eq 2000
```

```
hostname(config-cmap)# exit
hostname(config)# policy-map skinny_policy
hostname(config-pmap)# class skinny-port
hostname(config-pmap-c)# inspect skinny
hostname(config-pmap-c)# exit
hostname(config)# service-policy skinny_policy interface outside
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
debug skinny	Enables SCCP debugging information.
show skinny	Displays information about SCCP sessions established through the ASA.
show conn	Displays the connection state for different connection types.
timeout	Sets the maximum idle time duration for different protocols and session types.
tls-proxy	Defines a TLS proxy instance and sets the maximum sessions.

inspect snmp

To enable SNMP application inspection or to change the ports to which the ASA listens, use the **inspect snmp** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

inspect snmp *map_name*

no inspect snmp *map_name*

Syntax Description

map_name	The name of the SNMP map.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Use the **inspect snmp** command to enable SNMP inspection, using the settings configured with an SNMP map, which you create using the **snmp-map** command. Use the **deny version** command in SNMP map configuration mode to restrict SNMP traffic to a specific version of SNMP.

Earlier versions of SNMP are less secure so restricting SNMP traffic to Version 2 may be required by your security policy. To deny a specific version of SNMP, use the **deny version** command within an SNMP map, which you create using the **snmp-map** command. After configuring the SNMP map, you enable the map using the **inspect snmp** command and then apply it to one or more interfaces using the **service-policy** command.

To enable strict snmp application inspection for all interfaces, use the **global** parameter in place of **interface outside**.

Examples

The following example identifies SNMP traffic, defines an SNMP map, defines a policy, enables SNMP inspection, and applies the policy to the outside interface:

```
hostname(config)# access-list snmp-acl permit tcp any any eq 161
hostname(config)# access-list snmp-acl permit tcp any any eq 162
hostname(config)# class-map snmp-port
hostname(config-cmap)# match access-list snmp-acl
```

```
hostname(config-cmap)# exit
hostname(config)# snmp-map inbound_snmp
hostname(config-snmp-map)# deny version 1
hostname(config-snmp-map)# exit
hostname(config)# policy-map inbound_policy
hostname(config-pmap)# class snmp-port
hostname(config-pmap-c)# inspect snmp inbound_snmp
hostname(config-pmap-c)# exit
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
deny version	Disallows traffic using a specific version of SNMP.
snmp-map	Defines an SNMP map and enables SNMP map configuration mode.
policy-map	Associates a class map with specific security actions.
service-policy	Applies a policy map to one or more interfaces.

inspect sqlnet

To enable Oracle SQL*Net application inspection, use the **inspect sqlnet** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

inspect sqlnet

no inspect sqlnet

Syntax Description

This command has no arguments or keywords.

Defaults

This command is enabled by default.

The default port assignment is 1521.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced, replacing the **fixup** command, which has been deprecated.

Usage Guidelines

The SQL*Net protocol consists of different packet types that the ASA handles to make the data stream appear consistent to the Oracle applications on either side of the ASA.

The default port assignment for SQL*Net is 1521. This is the value used by Oracle for SQL*Net, but this value does not agree with IANA port assignments for Structured Query Language (SQL). Use the **class-map** command to apply SQL*Net inspection to a range of port numbers.

Note Disable SQL*Net inspection when SQL data transfer occurs on the same port as the SQL control TCP port 1521. The ASA acts as a proxy when SQL*Net inspection is enabled and reduces the client window size from 65000 to about 16000 causing data transfer issues.

The ASA NATs all addresses and looks in the packets for all embedded ports to open for SQL*Net Version 1.

For SQL*Net Version 2, all DATA or REDIRECT packets that immediately follow REDIRECT packets with a zero data length will be fixed up.

The packets that need fix-up contain embedded host/port addresses in the following format:

```
(ADDRESS=(PROTOCOL=tcp)(DEV=6)(HOST=a.b.c.d)(PORT=a))
```

SQL*Net Version 2 TNSFrame types (Connect, Accept, Refuse, Resend, and Marker) will not be scanned for addresses to NAT nor will inspection open dynamic connections for any embedded ports in the packet.

SQL*Net Version 2 TNSFrames, Redirect, and Data packets will be scanned for ports to open and addresses to NAT, if preceded by a REDIRECT TNSFrame type with a zero data length for the payload. When the Redirect message with data length zero passes through the ASA, a flag will be set in the connection data structure to expect the Data or Redirect message that follows to be NATed and ports to be dynamically opened. If one of the TNS frames in the preceding paragraph arrive after the Redirect message, the flag will be reset.

The SQL*Net inspection engine will recalculate the checksum, change IP, TCP lengths, and readjust Sequence Numbers and Acknowledgment Numbers using the delta of the length of the new and old message.

SQL*Net Version 1 is assumed for all other cases. TNSFrame types (Connect, Accept, Refuse, Resend, Marker, Redirect, and Data) and all packets will be scanned for ports and addresses. Addresses will be NATed and port connections will be opened.

To enable SQL*Net inspection for all interfaces, use the **global** parameter in place of **interface outside**.

Examples

The following example enables the SQL*Net inspection engine, which creates a class map to match SQL*Net traffic on the default port (1521). The service policy is then applied to the outside interface.

```
hostname(config)# class-map sqlnet-port
hostname(config-cmap)# match port tcp eq 1521
hostname(config-cmap)# exit
hostname(config)# policy-map sqlnet_policy
hostname(config-pmap)# class sqlnet-port
hostname(config-pmap-c)# inspect sqlnet
hostname(config-pmap-c)# exit
hostname(config)# service-policy sqlnet_policy interface outside
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
debug sqlnet	Enables debugging information for SQL*Net.
policy-map	Associates a class map with specific security actions.
service-policy	Applies a policy map to one or more interfaces.
show conn	Displays the connection state for different connection types, including SQL*net.

inspect sunrpc

To enable Sun RPC application inspection or to change the ports to which the ASA listens, use the **inspect sunrpc** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

inspect sunrpc

no inspect sunrpc

Syntax Description

This command has no arguments or keywords.

Defaults

This command is enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced, replacing the **fixup** command, which has been deprecated.

Usage Guidelines

To enable Sun RPC application inspection or to change the ports to which the ASA listens, use the **inspect sunrpc** command in policy map class configuration mode, which is accessible by using the **class** command within policy map configuration mode. To remove the configuration, use the **no** form of this command.

The **inspect sunrpc** command enables or disables application inspection for the Sun RPC protocol. Sun RPC is used by NFS and NIS. Sun RPC services can run on any port on the system. When a client attempts to access an Sun RPC service on a server, it must find out which port that service is running on. It does this by querying the portmapper process on the well-known port of 111.

The client sends the Sun RPC program number of the service, and gets back the port number. From this point on, the client program sends its Sun RPC queries to that new port. When a server sends out a reply, the ASA intercepts this packet and opens both embryonic TCP and UDP connections on that port.

Note NAT or PAT of Sun RPC payload information is not supported.

To enable RPC inspection for all interfaces, use the **global** parameter in place of **interface outside**.

Examples

The following example enables the RPC inspection engine, which creates a class map to match RPC traffic on the default port (111). The service policy is then applied to the outside interface.

```
hostname(config)# class-map sunrpc-port
hostname(config-cmap)# match port tcp eq 111
hostname(config-cmap)# exit
hostname(config)# policy-map sample_policy
hostname(config-pmap)# class sunrpc-port
hostname(config-pmap-c)# inspect sunrpc
hostname(config-pmap-c)# exit
hostname(config)# service-policy sample_policy interface outside
```

Related Commands

Commands	Description
clear configure sunrpc_server	Removes the configuration performed using the **sunrpc-server** command.
clear sunrpc-server active	Clears the pinholes that are opened by Sun RPC application inspection for specific services, such as NFS or NIS.
show running-config sunrpc-server	Displays the information about the Sun RPC service table configuration.
sunrpc-server	Allows pinholes to be created with a specified timeout for Sun RPC services, such as NFS or NIS.
show sunrpc-server active	Displays the pinholes open for Sun RPC services.

inspect tftp

To disable TFTP application inspection, or to enable it if it has been previously disabled, use the **inspect tftp** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

inspect tftp

no inspect tftp

Syntax Description

This command has no arguments or keywords.

Defaults

This command is enabled by default.

The default port assignment is 69.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced, replacing the **fixup** command, which has been deprecated.

Usage Guidelines

Trivial File Transfer Protocol (TFTP), described in RFC 1350, is a simple protocol to read and write files between a TFTP server and client.

The ASA inspects TFTP traffic and dynamically creates connections and translations, if necessary, to permit file transfer between a TFTP client and server. Specifically, the inspection engine inspects TFTP read request (RRQ), write request (WRQ), and error notification (ERROR).

A dynamic secondary channel and a PAT translation, if necessary, are allocated on a reception of a valid read (RRQ) or write (WRQ) request. This secondary channel is subsequently used by TFTP for file transfer or error notification.

Only the TFTP server can initiate traffic over the secondary channel, and at most one incomplete secondary channel can exist between the TFTP client and server. An error notification from the server closes the secondary channel.

TFTP inspection must be enabled if static PAT is used to redirect TFTP traffic.

To enable TFTP inspection for all interfaces, use the **global** parameter in place of **interface outside**.

Examples

The following example enables the TFTP inspection engine, which creates a class map to match TFTP traffic on the default port (69). The service policy is then applied to the outside interface.

```
hostname(config)# class-map tftp-port
hostname(config-cmap)# match port udp eq 69
hostname(config-cmap)# exit
hostname(config)# policy-map tftp_policy
hostname(config-pmap)# class tftp-port
hostname(config-pmap-c)# inspect tftp
hostname(config-pmap-c)# exit
hostname(config)# service-policy tftp_policy interface outside
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
policy-map	Associates a class map with specific security actions.
service-policy	Applies a policy map to one or more interfaces.

inspect waas

To enable WAAS application inspection, use the **inspect waas** command in class configuration mode. The class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

inspect waas

no inspect waas

Syntax Description

This command has no arguments or keywords.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to enable WAAS application inspection:

```
hostname(config-pmap-c)# inspect waas
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
policy-map	Associates a class map with specific security actions.
service-policy	Applies a policy map to one or more interfaces.

inspect xdmcp

To enable XDMCP application inspection or to change the ports to which the ASA listens, use the **inspect xdmcp command** in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

inspect xdmcp

no inspect xdmcp

Syntax Description

This command has no arguments or keywords.

Defaults

This command is enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced, replacing the **fixup** command, which has been deprecated.

Usage Guidelines

The **inspect xdmcp** command enables or disables application inspection for the XDMCP protocol.

XDMCP is a protocol that uses UDP port 177 to negotiate X sessions, which use TCP when established.

For successful negotiation and start of an XWindows session, the ASA must allow the TCP back connection from the Xhosted computer. To permit the back connection, use the **established** command on the ASA. Once XDMCP negotiates the port to send the display, The **established** command is consulted to verify if this back connection should be permitted.

During the XWindows session, the manager talks to the display Xserver on the well-known port 6000 | n. Each display has a separate connection to the Xserver, as a result of the following terminal setting:

```
setenv DISPLAY Xserver:n
```

where *n* is the display number.

When XDMCP is used, the display is negotiated using IP addresses, which the ASA can NAT if needed. XDCMP inspection does not support PAT.

To enable XDMCP inspection for all interfaces, use the **global** parameter in place of **interface outside**.

Examples

The following example enables the XDMCP inspection engine, which creates a class map to match XDMCP traffic on the default port (177). The service policy is then applied to the outside interface.

```
hostname(config)# class-map xdmcp-port
hostname(config-cmap)# match port tcp eq 177
hostname(config-cmap)# exit
hostname(config)# policy-map xdmcp_policy
hostname(config-pmap)# class xdmcp-port
hostname(config-pmap-c)# inspect xdmcp
hostname(config-pmap-c)# exit
hostname(config)# service-policy xdmcp_policy interface outside
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
debug xdmcp	Enables debugging information for XDMCP.
policy-map	Associates a class map with specific security actions.
service-policy	Applies a policy map to one or more interfaces.

CHAPTER 26

integrity through ip verify reverse-path Commands

integrity

To specify the ESP integrity algorithm in an IKEv2 security association (SA) for AnyConnect IPsec connections, use the **integrity** command in IKEv2 policy configuration mode. To remove the command and use the default setting, use the **no** form of this command:

integrity {**md5** | **sha** | **sha256** | **sha384** | **sha512** | **null**}

no integrity {**md5** | **sha** | **sha256** | **sha384** | **sha512** | **null**}

Syntax Description

md5	Specifies the MD5 algorithm for the ESP integrity protection.
null	Allows an administrator to choose null as the IKEv2 integrity algorithm when AES-GCM is specified as the encryption algorithm.
sha	(Default) Specifies the Secure Hash Algorithm (SHA) SHA 1, defined in the U.S. Federal Information Processing Standard (FIPS), for ESP integrity protection.
sha256	Specifies the Secure Hash Algorithm SHA 2 with the 256-bit digest.
sha384	Specifies the Secure Hash Algorithm SHA 2 with the 384-bit digest.
sha512	Specifies the Secure Hash Algorithm SHA 2 with the 512-bit digest.

Defaults

The default is **sha (**SHA 1 algorithm).

Usage Guidelines

An IKEv2 SA is a key used in phase 1 to enable IKEv2 peers to communicate securely in phase 2. After entering the **crypto ikev2 policy** command, use the **integrity** command to set the integrity algorithm for the ESP protocol.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
8.4(1)	This command was added.
8.4(2)	The **sha256**, **sha384**, and **sha512** keywords were added for SHA 2 support.
9.0(1)	Added the null option as an IKEv2 integrity algorithm.

Examples

The following example enters IKEv2 policy configuration mode and sets the integrity algorithm to MD5:

```
hostname(config)# crypto ikev2 policy 1
```

```
hostname(config-ikev2-policy)# integrity md5
```

Related Commands

Command	Description
encryption	Specifies the encryption algorithm in an IKEv2 SA for AnyConnect IPsec connections.
group	Specifies the Diffie-Hellman group in an IKEv2 SA for AnyConnect IPsec connections.
lifetime	Specifies the SA lifetime for the IKEv2 SA for AnyConnect IPsec connections.
prf	Specifies the pseudo-random function in an IKEv2 SA for AnyConnect IPsec connections.

intercept-dhcp

To enable DHCP Intercept, use the **intercept-dhcp enable** command in group-policy configuration mode. To remove the **intercept-dhcp** attribute from the running configuration and allow the users to inherit a DHCP Intercept configuration from the default or other group policy, use the **no** form of this command.

intercept-dhcp *netmask* {**enable | disable**}

no intercept-dhcp

Syntax Description

disable	Disables DHCP Intercept.
enable	Enables DHCP Intercept.
netmask	Provides the subnet mask for the tunnel IP address.

Defaults

DHCP Intercept is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To disable DHCP Intercept, use the **intercept-dhcp disable** command.

A Microsoft XP anomaly results in the corruption of domain names if split tunnel options exceed 255 bytes. To avoid this problem, the ASA limits the number of routes it sends to 27 to 40 routes, with the number of routes dependent on the classes of the routes.

DHCP Intercept lets Microsoft XP clients use split-tunneling with the ASA. The ASA replies directly to the Microsoft Windows XP client DHCP Inform message, providing that client with the subnet mask, domain name, and classless static routes for the tunnel IP address. For Windows clients prior to XP, DHCP Intercept provides the domain name and subnet mask. This is useful in environments in which using a DHCP server is not advantageous.

Examples

The following example shows how to set DHCP Intercepts for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# intercept-dhcp enable
```

interface

To configure an interface and enter interface configuration mode, use the **interface** command in global configuration mode. To remove a subinterface, use the **no** form of this command; you cannot remove a physical interface or a mapped interface.

For physical interfaces (for all models except the ASASM):

interface *physical_interface*

For subinterfaces (not available for the ASA 5505 or the ASASM, or for the Management interface on the ASA 5512-X through ASA 5555-X):

interface {*physical_interface* | **redundant** *number* | **port-channel** *number*}**.***subinterface*

no interface {*physical_interface* | **redundant** *number* | **port-channel** *number*}**.***subinterface*

For multiple context mode when a mapped name is assigned:

interface *mapped_name*

Syntax Description

mapped_name	In multiple context mode, specifies the mapped name if it was assigned using the **allocate-interface** command.
physical_interface	Specifies the physical interface type, slot, and port number as *type*[*slot*/]*port*. A space between the type and slot/port is optional. The physical interface types include the following: • **ethernet** • **gigabitethernet** • **tengigabitethernet** • **management** Enter the type followed by slot/port, for example, **gigabitethernet 0/1**. The management interface is meant for management traffic only. You can, however, use it for through traffic if desired, depending on your model (see the **management-only** command). See the hardware documentation that came with your model to identify the interface type, slot, and port number.
subinterface	Specifies an integer between 1 and 4294967293 designating a logical subinterface. The maximum number of subinterfaces varies depending on your ASA model. Subinterfaces are not available for the ASA 5505, ASASM, or for the management interface on the ASA 5512-X through ASA 5555-X. See the configuration guide for the maximum subinterfaces (or VLANs) per platform. An interface with one or more VLAN subinterfaces is automatically configured as an 802.1Q trunk.

Defaults

By default, the ASA automatically generates **interface** commands for all physical interfaces.

In multiple context mode, the ASA automatically generates **interface** commands for all interfaces allocated to the context using the **allocate-interface** command.

The default state of an interface depends on the type and the context mode:

- Multiple context mode, context—All allocated interfaces are enabled by default, no matter what the state of the interface is in the system execution space. However, for traffic to pass through the interface, the interface also has to be enabled in the system execution space. If you shut down an interface in the system execution space, then that interface is down in all contexts that share it.
- Single mode or multiple context mode, system—Interfaces have the following default states:
  - Physical interfaces—Disabled.
  - Subinterfaces—Enabled. However, for traffic to pass through the subinterface, the physical interface must also be enabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was modified to allow for new subinterface naming conventions and to change arguments to be separate commands under interface configuration mode.

Usage Guidelines

In interface configuration mode, you can configure hardware settings (for physical interfaces), assign a name, assign a VLAN, assign an IP address, and configure many other settings, depending on the type of interface and the security context mode.

For an enabled interface to pass traffic, configure the following interface configuration mode commands: **nameif**, and, for routed mode, **ip address**. For subinterfaces, also configure the **vlan** command.

If you change interface settings, and you do not want to wait for existing connections to time out before the new security information is used, you can clear the connections using the **clear local-host** command.

The Management 0/0 interface on the ASA 5512-X through ASA 5555-X has the following characteristics:

- No through traffic support
- No subinterface support
- No priority queue support
- No multicast MAC support
- The IPS SSP software module shares the Management 0/0 interface. Separate MAC addresses and IP addresses are supported for the ASA and IPS module. You must perform configuration of the IPS IP address within the IPS operating system. However, physical characteristics (such as enabling the interface) are configured on the ASA.

Examples

The following example configures parameters for the physical interface in single mode:

```
hostname(config)# interface gigabitethernet0/1
hostname(config-if)# speed 1000
hostname(config-if)# duplex full
hostname(config-if)# nameif inside
hostname(config-if)# security-level 100
hostname(config-if)# ip address 10.1.1.1 255.255.255.0
hostname(config-if)# no shutdown
```

The following example configures parameters for a subinterface in single mode:

```
hostname(config)# interface gigabitethernet0/1.1
hostname(config-subif)# vlan 101
hostname(config-subif)# nameif dmz1
hostname(config-subif)# security-level 50
hostname(config-subif)# ip address 10.1.2.1 255.255.255.0
hostname(config-subif)# no shutdown
```

The following example configures interface parameters in multiple context mode for the system configuration, and allocates the gigabitethernet 0/1.1 subinterface to contextA:

```
hostname(config)# interface gigabitethernet0/1
hostname(config-if)# speed 1000
hostname(config-if)# duplex full
hostname(config-if)# no shutdown
hostname(config-if)# interface gigabitethernet0/1.1
hostname(config-subif)# vlan 101
hostname(config-subif)# no shutdown
hostname(config-subif)# context contextA
hostname(config-ctx)# ...
hostname(config-ctx)# allocate-interface gigabitethernet0/1.1
```

The following example configures parameters in multiple context mode for the context configuration:

```
hostname/contextA(config)# interface gigabitethernet0/1.1
hostname/contextA(config-if)# nameif inside
hostname/contextA(config-if)# security-level 100
hostname/contextA(config-if)# ip address 10.1.2.1 255.255.255.0
hostname/contextA(config-if)# no shutdown
```

Related Commands

Command	Description
allocate-interface	Assigns interfaces and subinterfaces to a security context.
member-interface	Assigns interfaces to a redundant interface.
clear interface	Clears counters for the **show interface** command.
show interface	Displays the runtime status and statistics of interfaces.
vlan	Assigns a VLAN to a subinterface.

interface bvi

To configure the bridge virtual interface (BVI) for a bridge group, use the **interface bvi** command in global configuration mode. To remove the BVI configuration, use the **no** form of this command.

interface bvi *bridge_group_number*

no interface bvi *bridge_group_number*

Syntax Description

bridge_group_number	Specifies the bridge group number as an integer between 1 and 100.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	—	•	•	•	—

Command History

Release	Modification
8.4(1)	We introduced this command.

Usage Guidelines

Use this command to enter interface configuration mode so you can configure a management IP address for the bridge group. If you do not want the overhead of security contexts, or want to maximize your use of security contexts, you can group interfaces together in a bridge group, and then configure multiple bridge groups, one for each network. Bridge group traffic is isolated from other bridge groups; traffic is not routed to another bridge group within the ASA, and traffic must exit the ASA before it is routed by an external router back to another bridge group in the ASA. Although the bridging functions are separate for each bridge group, many other functions are shared between all bridge groups. For example, all bridge groups share a syslog server or AAA server configuration. For complete security policy separation, use security contexts with one bridge group in each context. At least one bridge group is required per context or in single mode.

Each bridge group requires a management IP address. The ASA uses this IP address as the source address for packets originating from the bridge group. The management IP address must be on the same subnet as the connected network. For IPv4 traffic, the management IP address is required to pass any traffic. For IPv6 traffic, you must, at a minimum, configure the link-local addresses to pass traffic, but a global management address is recommended for full functionality, including remote management and other management operations. For another method of management, you can configure the Management interface, separate from any bridge groups.

You can configure up to 8 bridge groups in single mode or per context in multiple mode. Note that you must use at least one bridge group; data interfaces must belong to a bridge group. Each bridge group can include up to four interfaces.

Note (ASA 5510 and higher appliances) For a separate management interface, a non-configurable bridge group (ID 101) is automatically added to your configuration. This bridge group is not included in the bridge group limit.

Note The ASA does not support traffic on secondary networks; only traffic on the same network as the management IP address is supported.

Examples

The following example includes two bridge groups of three interfaces each, plus a management-only interface:

```
interface gigabitethernet 0/0
    nameif inside
    security-level 100
    bridge-group 1
    no shutdown
interface gigabitethernet 0/1
    nameif outside
    security-level 0
    bridge-group 1
    no shutdown
interface gigabitethernet 0/2
    nameif dmz
    security-level 50
    bridge-group 1
    no shutdown
interface bvi 1
    ip address 10.1.3.1 255.255.255.0 standby 10.1.3.2

interface gigabitethernet 1/0
    nameif inside
    security-level 100
    bridge-group 2
    no shutdown
interface gigabitethernet 1/1
    nameif outside
    security-level 0
    bridge-group 2
    no shutdown
interface gigabitethernet 1/2
    nameif dmz
    security-level 50
    bridge-group 2
    no shutdown
interface bvi 2
    ip address 10.3.5.8 255.255.255.0 standby 10.3.5.9

interface management 0/0
    nameif mgmt
    security-level 100
    ip address 10.2.1.1 255.255.255.0 standby 10.2.1.2
    no shutdown
```

Related Commands

Command	Description
ace/bvi	Clears the bridge virtual interface configuration.
bridge-group	Groups transparent firewall interfaces into a bridge group.
interface	Configures an interface.
ip address	Sets the management IP address for a bridge group.
show bridge-group	Shows bridge group information, including member interfaces and IP addresses.
show running-config interface bvi	Shows the bridge group interface configuration.

interface port-channel

To configure an EtherChannel interface and enter interface configuration mode, use the **interface port-channel** command in global configuration mode. To remove an EtherChannel interface, use the **no** form of this command.

interface port-channel *number*

no interface port-channel *number*

Syntax Description

number	Specifies the EtherChannel channel group ID, between 1 and 48. This interface was created automatically when you added an interface to the channel group. If you have not yet added an interface, then this command creates the port-channel interface. **Note** You need to add at least one member interface to the port-channel interface before you can configure logical parameters for it, such as a name.

Defaults

By default, port-channel interfaces are enabled. However, for traffic to pass through the EtherChannel, the channel group physical interfaces must also be enabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
8.4(1)	We introduced this command.

Usage Guidelines

In interface configuration mode, you can assign a name, assign an IP address, and configure many other settings.

For an enabled interface to pass traffic, configure the following interface configuration mode commands: **nameif**, and, for routed mode, **ip address**.

If you change interface settings, and you do not want to wait for existing connections to time out before the new security information is used, you can clear the connections using the **clear local-host** command.

Note This command is not supported on the ASA 5505 or the ASASM. You cannot use interfaces on the 4GE SSM, including the integrated 4GE SSM in slot 1 on the ASA 5550, as part of an EtherChannel.

For more information about interfaces, see the CLI configuration guide.

Examples

The following example configures three interfaces as part of an EtherChannel. It also sets the system priority to be a higher priority, and GigabitEthernet 0/2 to be a higher priority than the other interfaces in case more than eight interfaces are assigned to the EtherChannel.

```
hostname(config)# lacp system-priority 1234
hostname(config-if)# interface GigabitEthernet0/0
hostname(config-if)# channel-group 1 mode active
hostname(config-if)# interface GigabitEthernet0/1
hostname(config-if)# channel-group 1 mode active
hostname(config-if)# interface GigabitEthernet0/2
hostname(config-if)# lacp port-priority 1234
hostname(config-if)# channel-group 1 mode passive
hostname(config-if)# interface Port-channel1
hostname(config-if)# lacp max-bundle 4
hostname(config-if)# port-channel min-bundle 2
hostname(config-if)# port-channel load-balance dst-ip
```

Related Commands

Command	Description
channel-group	Adds an interface to an EtherChannel.
lacp max-bundle	Specifies the maximum number of active interfaces allowed in the channel group.
lacp port-priority	Sets the priority for a physical interface in the channel group.
lacp system-priority	Sets the LACP system priority.
port-channel load-balance	Configures the load-balancing algorithm.
port-channel min-bundle	Specifies the minimum number of active interfaces required for the port-channel interface to become active.
show lacp	Displays LACP information such as traffic statistics, system identifier and neighbor details.
show port-channel	Displays EtherChannel information in a detailed and one-line summary form. This command also displays the port and port-channel information.
show port-channel load-balance	Displays port-channel load-balance information along with the hash result and member interface selected for a given set of parameters.

interface redundant

To configure a redundant interface and enter interface configuration mode, use the **interface redundant** command in global configuration mode. To remove a redundant interface, use the **no** form of this command.

interface redundant *number*

no interface redundant *number*

Syntax Description

number	Specifies a logical redundant interface ID, between 1 and 8. A space between **redundant** and the ID is optional.

Defaults

By default, redundant interfaces are enabled. However, for traffic to pass through the redundant interface, the member physical interfaces must also be enabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
8.0(2)	We introduced this command.

Usage Guidelines

A redundant interface pairs an active and a standby physical interface (see the **member-interface** command). When the active interface fails, the standby interface becomes active and starts passing traffic.

All ASA configuration refers to the logical redundant interface instead of the member physical interfaces.

In interface configuration mode, you can assign a name, assign an IP address, and configure many other settings.

For an enabled interface to pass traffic, configure the following interface configuration mode commands: **nameif**, and, for routed mode, **ip address**.

If you change interface settings, and you do not want to wait for existing connections to time out before the new security information is used, you can clear the connections using the **clear local-host** command.

Note This command is not supported on the ASA 5505 or the ASASM.

For more information about interfaces, see the CLI configuration guide.

Examples

The following example creates two redundant interfaces:

```
hostname(config)# interface redundant 1
hostname(config-if)# member-interface gigabitethernet 0/0
hostname(config-if)# member-interface gigabitethernet 0/1
hostname(config-if)# interface redundant 2
hostname(config-if)# member-interface gigabitethernet 0/2
hostname(config-if)# member-interface gigabitethernet 0/3
```

Related Commands

Command	Description
clear interface	Clears counters for the **show interface** command.
debug redundant-interface	Displays debug messages related to redundant interface events or errors.
member-interface	Assigns a physical interface to a redundant interface.
redundant-interface	Changes the active member interface.
show interface	Displays the runtime status and statistics of interfaces.

interface vlan

For the ASA 5505 and ASASM, to configure a VLAN interface and enter interface configuration mode, use the **interface vlan** command in global configuration mode. To remove a VLAN interface, use the **no** form of this command.

interface vlan *number*

no interface vlan *number*

Syntax Description

number	Specifies a VLAN ID. For the ASA 5505, use an ID between 1 and 4090. The VLAN interface ID is enabled by default on VLAN 1. For the ASASM, use an ID between 2 to 1000 and from 1025 to 4094.

Defaults

By default, VLAN interfaces are enabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.2(1)	We introduced this command.
8.4(1)M	We introduced ASASM support.

Usage Guidelines

For the ASASM, you can add any VLAN ID to the configuration, but only VLANs that are assigned to the ASA by the switch can pass traffic. To view all VLANs assigned to the ASA, use the **show vlan** command. If you add an interface for a VLAN that is not yet assigned to the ASA by the switch, the interface will be in the down state. When you assign the VLAN to the ASA, the interface changes to an up state. See the **show interface** command for more information about interface states.

In interface configuration mode, you can assign a name, assign an IP address, and configure many other settings.

For an enabled interface to pass traffic, configure the following interface configuration mode commands: **nameif**, and, for routed mode, **ip address**. For the ASA 5505 switch physical interfaces, assign the physical interface to the VLAN interface using the **switchport access vlan** command.

If you change interface settings, and you do not want to wait for existing connections to time out before the new security information is used, you can clear the connections using the **clear local-host** command.

For more information about interfaces, see the CLI configuration guide.

Examples

The following example configures three VLAN interfaces. The third home interface cannot forward traffic to the work inteface.

```
hostname(config)# interface vlan 100
hostname(config-if)# nameif outside
hostname(config-if)# security-level 0
hostname(config-if)# ip address dhcp
hostname(config-if)# no shutdown

hostname(config-if)# interface vlan 200
hostname(config-if)# nameif work
hostname(config-if)# security-level 100
hostname(config-if)# ip address 10.1.1.1 255.255.255.0
hostname(config-if)# no shutdown

hostname(config-if)# interface vlan 300
hostname(config-if)# no forward interface vlan 200
hostname(config-if)# nameif home
hostname(config-if)# security-level 50
hostname(config-if)# ip address 10.2.1.1 255.255.255.0
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/0
hostname(config-if)# switchport access vlan 100
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/1
hostname(config-if)# switchport access vlan 200
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/2
hostname(config-if)# switchport access vlan 200
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/3
hostname(config-if)# switchport access vlan 200
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/4
hostname(config-if)# switchport access vlan 300
hostname(config-if)# no shutdown
```

The following example configures five VLAN interfaces, including the failover interface, which is configured separately using the **failover lan** command:

```
hostname(config)# interface vlan 100
hostname(config-if)# nameif outside
hostname(config-if)# security-level 0
hostname(config-if)# ip address 10.1.1.1 255.255.255.0
hostname(config-if)# no shutdown

hostname(config-if)# interface vlan 200
hostname(config-if)# nameif inside
hostname(config-if)# security-level 100
hostname(config-if)# ip address 10.2.1.1 255.255.255.0
hostname(config-if)# no shutdown

hostname(config-if)# interface vlan 300
hostname(config-if)# nameif dmz
hostname(config-if)# security-level 50
```

```
hostname(config-if)# ip address 10.3.1.1 255.255.255.0
hostname(config-if)# no shutdown

hostname(config-if)# interface vlan 400
hostname(config-if)# nameif backup-isp
hostname(config-if)# security-level 50
hostname(config-if)# ip address 10.1.2.1 255.255.255.0
hostname(config-if)# no shutdown

hostname(config-if)# failover lan faillink vlan500
hostname(config)# failover interface ip faillink 10.4.1.1 255.255.255.0 standby 10.4.1.2
255.255.255.0

hostname(config)# interface ethernet 0/0
hostname(config-if)# switchport access vlan 100
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/1
hostname(config-if)# switchport access vlan 200
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/2
hostname(config-if)# switchport access vlan 300
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/3
hostname(config-if)# switchport access vlan 400
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/4
hostname(config-if)# switchport access vlan 500
hostname(config-if)# no shutdown
```

Related Commands

Command	Description
allocate-interface	Assigns interfaces and subinterfaces to a security context.
clear interface	Clears counters for the **show interface** command.
show interface	Displays the runtime status and statistics of interfaces.

interface (vpn load-balancing)

To specify a non-default public or private interface for VPN load-balancing in the VPN load-balancing virtual cluster, use the **interface** command in vpn load-balancing mode. To remove the interface specification and revert to thte default interface, use the **no** form of this command.

interface {**lbprivate** | **lbpublic**} *interface-name*

no interface {**lbprivate** | **lbpublic**}

Syntax Description

interface-name	The name of the interface to be configured as the public or private interface for the VPN load-balancing cluster.
lbprivate	Specifies that this command configures the private interface for VPN load-balancing.
lbpublic	Specifies that this command configures the public interface for VPN load-balancing.

Defaults

If you omit the **interface** command, the **lbprivate** interface defaults to **inside**, and the **lbpublic** interface defaults to **outside**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
vpn load-balancing	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You must have first used the **vpn load-balancing** command to enter vpn load-balancing configuration mode.

You must also have previously used the **interface**, **ip address** and **nameif** commands to configure and assign a name to the interface that you are specifying in this command.

Examples

The following is an example of a **vpn load-balancing** command sequence that includes an **interface** command that specifies the public interface of the cluster as “test” one that reverts the private interface of the cluster to the default (inside):

```
hostname(config)# interface GigabitEthernet 0/1
hostname(config-if)# ip address 209.165.202.159 255.255.255.0
hostname(config)# nameif test
```

```
hostname(config)# interface GigabitEthernet 0/2
hostname(config-if)# ip address 209.165.201.30 255.255.255.0
hostname(config)# nameif foo
hostname(config)# vpn load-balancing
hostname(config-load-balancing)# interface lbpublic test
hostname(config-load-balancing)# no interface lbprivate
hostname(config-load-balancing)# cluster ip address 209.165.202.224
hostname(config-load-balancing)# participate
hostname(config-load-balancing)# participate
```

Related Commands

Command	Description
vpn load-balancing	Enters vpn load-balancing configuration mode.

interface-policy

To specify the policy for failover when monitoring detects an interface failure, use the **interface-policy** command in failover group configuration mode. To restore the default values, use the **no** form of this command.

interface-policy *num*[**%**]

no interface-policy *num*[**%**]

Syntax Description

num	Specifies a number from 1 to 100 when used as a percentage, or 1 to the maximum number of interfaces.
%	(Optional) Specifies that the number *num* is a percentage of the monitored interfaces.

Defaults

If the **failover interface-policy** command is configured for the unit, then the default for the **interface-policy failover group** command assumes that value. If not, then *num* is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Failover group configuration	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

There is no space between the *num* argument and the optional **%** keyword.

If the number of failed interfaces meets the configured policy and the other ASA is functioning correctly, the ASA will mark itself as failed and a failover may occur (if the active ASA is the one that fails). Only interfaces that are designated as monitored by the **monitor-interface** command count towards the policy.

Examples

The following partial example shows a possible configuration for a failover group:

```
hostname(config)# failover group 1
hostname(config-fover-group)# primary
hostname(config-fover-group)# preempt 100
hostname(config-fover-group)# interface-policy 25%
hostname(config-fover-group)# exit
hostname(config)#
```

Related Commands

Command	Description
failover group	Defines a failover group for Active/Active failover.
failover interface-policy	Configures the interface monitoring policy.
monitor-interface	Specifies the interfaces being monitored for failover.

internal-password

To display an additional password field on the clientless SSL VPN portal page, use the **internal-password** command in webvpn configuration mode. This additional password is used by the ASA to authenticate users to file servers for whom SSO is allowed.

To disable the ability to use an internal password, use the **no** version of the command.

internal-password enable

no internal password

Syntax Description

enable	Enables use of an internal password.

Defaults

The default is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

If enabled, end users type a second password when logging in to a clientless SSL VPN session. The clientless SSL VPN server sends an SSO authentication request, including the username and password, to the authenticating server using HTTPS. If the authenticating server approves the authentication request, it returns an SSO authentication cookie to the clientless SSL VPN server. This cookie is kept on the ASA on behalf of the user and used to authenticate the user to secure websites within the domain protected by the SSO server.

The internal password feature is useful if you require that the internal password be different from the SSL VPN password. In particular, you can use one-time passwords for authentication to the ASA, and another password for internal sites.

Examples

The following example shows how to enable the internal password:

```
hostname(config)# webvpn
hostname(config-webvpn)# internal password enable
hostname(config-webvpn)#
```

Related Commands

Command	Description
webvpn	Enters webvpn configuration mode, which lets you configure attributes for clientless SSL VPN connections.

interval maximum

To configure the maximum interval between update attempts by a DDNS update method, use the **interval** command in DDNS-update-method mode. To remove an interval for a DDNS update method from the running configuration, use the **no** form of this command.

interval maximum *days hours minutes seconds*

no interval maximum *days hours minutes seconds*

Syntax Description

days	Specifies the number of days between update attempts with a range of 0 to 364.
hours	Specifies the number of hours between update attempts with a range of 0 to 23.
minutes	Specifies the number of minutes between update attempts with a range of 0 to 59.
seconds	Specifies the number of seconds between update attempts with a range of 0 to 59.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ddns-update-method configuration	•	—	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

The days, hours, minutes, and seconds are added together to arrive at the total interval.

Examples

The following example configures a method called ddns-2 to attempt an update every 3 minutes and 15 seconds:

```
hostname(config)# ddns update method ddns-2
hostname(DDNS-update-method)# interval maximum 0 0 3 15
```

Related Commands

Command	Description
ddns	Specifies a DDNS update method type for a created DDNS method.
ddns update	Associates a DDNS update method with an ASA interface or a DDNS update hostname.
ddns update method	Creates a method for dynamically updating DNS resource records.
dhcp-client update dns	Configures the update parameters that the DHCP client passes to the DHCP server.
dhcpd update dns	Enables a DHCP server to perform DDNS updates.

invalid-ack

To set the action for packets with an invalid ACK, use the **invalid-ack** command in tcp-map configuration mode. To set the value back to the default, use the **no** form of this command. This command is part of the TCP normalization policy enabled using the **set connection advanced-options** command.

invalid-ack {**allow** | **drop**}

no invalid-ack

Syntax Description

allow	Allows packets with an invalid ACK.
drop	Drops packets with an invalid ACK.

Defaults

The default action is to drop packets with an invalid ACK.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tcp-map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(4)/8.0(4)	This command was introduced.

Usage Guidelines

To enable TCP normalization, use the Modular Policy Framework:

1. **tcp-map**—Identifies the TCP normalization actions.
   a. **invalid-ack**—In tcp-map configuration mode, you can enter the **invalid-ack** command and many others.
2. **class-map**—Identify the traffic on which you want to perform TCP normalization.
3. **policy-map**—Identify the actions associated with each class map.
   a. **class**—Identify the class map on which you want to perform actions.
   b. **set connection advanced-options**—Identify the TCP map you created.
4. **service-policy**—Assigns the policy map to an interface or globally.

You might see invalid ACKs in the following instances:

- In the TCP connection SYN-ACK-received status, if the ACK number of a received TCP packet is not exactly the same as the sequence number of the next TCP packet sending out, it is an invalid ACK.

- Whenever the ACK number of a received TCP packet is greater than the sequence number of the next TCP packet sending out, it is an invalid ACK.

Note TCP packets with an invalid ACK are automatically allowed for WAAS connections.

Examples

The following example sets the ASA to allow packets with an invalid ACK:

```
hostname(config)# tcp-map tmap
hostname(config-tcp-map)# invalid-ack allow
hostname(config)# class-map cmap
hostname(config-cmap)# match any
hostname(config)# policy-map pmap
hostname(config-pmap)# class cmap
hostname(config-pmap)# set connection advanced-options tmap
hostname(config)# service-policy pmap global
hostname(config)#
```

Related Commands

Command	Description
class-map	Identifies traffic for a service policy.
policy-map	dentifies actions to apply to traffic in a service policy.
set connection advanced-options	Enables TCP normalization.
service-policy	Applies a service policy to interface(s).
show running-config tcp-map	Shows the TCP map configuration.
tcp-map	Creates a TCP map and allows access to tcp-map configuration mode.

ip address

To set the IP address for an interface (in routed mode) or for the bridge virtual interface (BVI) or management interface (transparent mode), use the **ip address** command in interface configuration mode. To remove the IP address, use the **no** form of this command.

ip address *ip_address* [*mask*] [**standby** *ip_address* | **cluster-pool** *poolname*]

no ip address [*ip_address*]

Syntax Description

cluster-pool *poolname*	(Optional) For ASA clustering, sets the cluster pool of addresses defined by the **ip local pool** command. The main cluster IP address defined by the *ip_address* argument belongs to the current master unit only. Each cluster member receives a local IP address from this pool. You cannot determine the exact address assigned to each unit in advance; to see the address used on each unit, enter the **show ip local pool** *poolname* command. Each cluster member is assigned a member ID when it joins the cluster. The ID determines the local IP used from the pool.
ip_address	The IP address for the interface.
mask	(Optional) The subnet mask for the IP address. If you do not set the mask, the ASA uses the default mask for the IP address class.
standby *ip_address*	(Optional) For failover, sets the IP address for the standby unit.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	For routed mode, this command was changed from a global configuration command to an interface configuration mode command.
8.4(1)	For transparent mode, bridge groups were introduced. You now set the IP address for the BVI, and not globally.
9.0(1)	The **cluster-pool** keyword was introduced to support ASA clustering.

Usage Guidelines

This command also sets the standby address for failover.

Multiple Context Mode Guidelines

In single context routed firewall mode, each interface address must be on a unique subnet. In multiple context mode, if this interface is on a shared interface, then each IP address must be unique but on the same subnet. If the interface is unique, this IP address can be used by other contexts if desired.

Transparent Firewall Guidelines

A transparent firewall does not participate in IP routing. The only IP configuration required for the ASA is to set the BVI address. This address is required because the ASA uses this address as the source address for traffic originating on the ASA, such as system messages or communications with AAA servers. You can also use this address for remote management access. This address must be on the same subnet as the upstream and downstream routers. For multiple context mode, set the management IP address within each context. For models that include a Management interface, you can also set an IP address for this interface for management purposes.

Failover Guidelines

The standby IP address must be on the same subnet as the main IP address.

ASA Clustering Guidelines

You can only set the cluster pool for an individual interface after you configure the cluster interface mode to be individual (**cluster-interface mode individual** command). The only exception is for the management-only interface(s):

- You can always configure the management-only interface as an individual interface, even in spanned EtherChannel mode. The management interface can be an individual interface even in transparent firewall mode.
- In spanned EtherChannel mode, if you configure the management interface as an individual interface, you cannot enable dynamic routing for the management interface. You must use a static route.

Examples

The following example sets the IP addresses and standby addresses of two interfaces:

```
hostname(config)# interface gigabitethernet0/2
hostname(config-if)# nameif inside
hostname(config-if)# security-level 100
hostname(config-if)# ip address 10.1.1.1 255.255.255.0 standby 10.1.1.2
hostname(config-if)# no shutdown
hostname(config-if)# interface gigabitethernet0/3
hostname(config-if)# nameif outside
hostname(config-if)# security-level 0
hostname(config-if)# ip address 10.1.2.1 255.255.255.0 standby 10.1.2.2
hostname(config-if)# no shutdown
```

The following example sets the management address and standby address of bridge group 1:

```
hostname(config)# interface bvi 1
hostname(config-if)# ip address 10.1.3.1 255.255.255.0 standby 10.1.3.2
```

Related Commands

Command	Description
interface	Configures an interface and enters interface configuration mode.

Command	Description
ip address dhcp	Sets the interface to obtain an IP address from a DHCP server.
show ip address	Shows the IP address assigned to an interface.

ip address dhcp

To use DHCP to obtain an IP address for an interface, use the **ip address dhcp** command in interface configuration mode. To disable the DHCP client for this interface, use the **no** form of this command.

ip address dhcp [**setroute**]

no ip address dhcp

Syntax Description

setroute	(Optional) Allows the ASA to use the default route supplied by the DHCP server.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was changed from a global configuration command to an interface configuration mode command. You can also enable this command on any interface, instead of only the outside interface.

Usage Guidelines

Reenter this command to reset the DHCP lease and request a new lease.

If you do not enable the interface using the **no shutdown** command before you enter the **ip address dhcp** command, some DHCP requests might not be sent.

Note The ASA rejects any leases that have a timeout of less than 32 seconds.

Examples

The following example enables DHCP on the Gigabitethernet0/1 interface:

```
hostname(config)# interface gigabitethernet0/1
hostname(config-if)# nameif inside
hostname(config-if)# security-level 100
hostname(config-if)# no shutdown
hostname(config-if)# ip address dhcp
```

Related Commands

Command	Description
interface	Configures an interface and enters interface configuration mode.
ip address	Sets the IP address for the interface or sets the management IP address for a transparent firewall.
show ip address dhcp	Shows the IP address obtained from the DHCP server.

ip address pppoe

To enable PPPoE, use the **ip address pppoe** command in interface configuration mode. To disable PPPoE, use the **no** form of this command.

ip address [*ip_address* [*mask*]] **pppoe** [**setroute**]

no ip address [*ip_address* [*mask*]] **pppoe**

Syntax Description

ip_address	Manually sets the IP address instead of receiving an address from the PPPoE server.
mask	Specifies the subnet mask for the IP address. If you do not set the mask, the ASA uses the default mask for the IP address class.
setroute	Lets the ASA use the default route supplied by the PPPoE server. If the PPPoE server does not send a default route, the ASA creates a default route with the address of the access concentrator as the gateway.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

PPPoE combines two widely accepted standards, Ethernet and PPP, to provide an authenticated method of assigning IP addresses to client systems. ISPs deploy PPPoE because it supports high-speed broadband access using their existing remote access infrastructure and because it is easier for customers to use.

Before you set the IP address using PPPoE, configure the **vpdn** commands to set the username, password, and authentication protocol. If you enable this command on more than one interface, for example for a backup link to your ISP, then you can assign each interface to a different VPDN group if necessary using the **pppoe client vpdn group** command.

The maximum transmission unit (MTU) size is automatically set to 1492 bytes, which is the correct value to allow PPPoE transmission within an Ethernet frame.

Reenter this command to reset and restart the PPPoE session.

You cannot set this command at the same time as the **ip address** command or the **ip address dhcp** command.

Examples

The following example enables PPPoE on the Gigabitethernet 0/1 interface:

```
hostname(config)# interface gigabitethernet0/1
hostname(config-if)# nameif outside
hostname(config-if)# security-level 0
hostname(config-if)# ip address pppoe
hostname(config-if)# no shutdown
```

The following example manually sets the IP address for a PPPoE interface:

```
hostname(config)# interface gigabitethernet0/1
hostname(config-if)# nameif outside
hostname(config-if)# security-level 0
hostname(config-if)# ip address 10.1.1.1 255.255.255.0 pppoe
hostname(config-if)# no shutdown
```

Related Commands

Command	Description
interface	Configures an interface and enters interface configuration mode.
ip address	Sets the IP address for an interface.
pppoe client vpdn group	Assigns this interface to a particular VPDN group.
show ip address pppoe	Shows the IP address obtained from the PPPoE server.
vpdn group	Creates a vpdn group and concfigures PPPoE client settings.

ip-address-privacy

To enable IP address privacy, use the **ip-address-privacy** command in parameters configuration mode. Parameters configuration mode is accessible from policy map configuration mode. To disable this feature, use the **no** form of this command.

ip-address-privacy

no ip-address-privacy

Syntax Description

This command has no arguments or keywords.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to enable IP address privacy over SIP in a SIP inspection policy map:

```
hostname(config)# policy-map type inspect sip sip_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# ip-address-privacy
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

ip audit attack

To set the default actions for packets that match an attack signature, use the **ip audit attack** command in global configuration mode. To restore the default action (to reset the connection), use the **no** form of this command.

ip audit attack [**action** [**alarm**] [**drop**] [**reset**]]

no ip audit attack

Syntax Description

action	(Optional) Specifies that you are defining a set of default actions. If you do not follow this keyword with any actions, then the ASA takes no action. If you do not enter the **action** keyword, the ASA assumes you entered it, and the **action** keyword appears in the configuration.
alarm	(Default) Generates a system message showing that a packet matched a signature.
drop	(Optional) Drops the packet.
reset	(Optional) Drops the packet and closes the connection.

Defaults

The default action is to send and alarm.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You can specify multiple actions, or no actions. You can override the action you set with this command when you configure an audit policy using the **ip audit name** command. If you do not specify the action in the **ip audit name** command, then the action you set with this command is used.

For a list of signatures, see the **ip audit signature** command.

Examples

The following example sets the default action to alarm and reset for packets that match an attack signature. The audit policy for the inside interface overrides this default to be alarm only, while the policy for the outside interface uses the default setting set with the **ip audit attack** command.

```
hostname(config)# ip audit attack action alarm reset
```

```
hostname(config)# ip audit name insidepolicy attack action alarm
hostname(config)# ip audit name outsidepolicy attack
hostname(config)# ip audit interface inside insidepolicy
hostname(config)# ip audit interface outside outsidepolicy
```

Related Commands

Command	Description
ip audit info	Sets the default actions for packets that match an informational signature.
ip audit interface	Assigns an audit policy to an interface.
ip audit name	Creates a named audit policy that identifies the actions to take when a packet matches an attack signature or an informational signature.
ip audit signature	Disables a signature.
show running-config ip audit attack	Shows the configuration for the **ip audit attack** command.

ip audit info

To set the default actions for packets that match an informational signature, use the **ip audit info** command in global configuration mode. To restore the default action (to generate an alarm), use the **no** form of this command. You can specify multiple actions, or no actions.

ip audit info [**action** [**alarm**] [**drop**] [**reset**]]

no ip audit info

Syntax Description

action	(Optional) Specifies that you are defining a set of default actions. If you do not follow this keyword with any actions, then the ASA takes no action. If you do not enter the **action** keyword, the ASA assumes you entered it, and the **action** keyword appears in the configuration.
alarm	(Default) Generates a system message showing that a packet matched a signature.
drop	(Optional) Drops the packet.
reset	(Optional) Drops the packet and closes the connection.

Defaults

The default action is to generate an alarm.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You can override the action you set with this command when you configure an audit policy using the **ip audit name** command. If you do not specify the action in the **ip audit name** command, then the action you set with this command is used.

For a list of signatures, see the **ip audit signature** command.

Examples

The following example sets the default action to alarm and reset for packets that match an informational signature. The audit policy for the inside interface overrides this default to be alarm and drop, while the policy for the outside interface uses the default setting set with the **ip audit info** command.

```
hostname(config)# ip audit info action alarm reset
```

```
hostname(config)# ip audit name insidepolicy info action alarm drop
hostname(config)# ip audit name outsidepolicy info
hostname(config)# ip audit interface inside insidepolicy
hostname(config)# ip audit interface outside outsidepolicy
```

Related Commands

Command	Description
ip audit attack	Sets the default actions for packets that match an attack signature.
ip audit interface	Assigns an audit policy to an interface.
ip audit name	Creates a named audit policy that identifies the actions to take when a packet matches an attack signature or an informational signature.
ip audit signature	Disables a signature.
show running-config ip audit info	Shows the configuration for the **ip audit info** command.

ip audit interface

To assign an audit policy to an interface, use the **ip audit interface** command in global configuration mode. To remove the policy from the interface, use the **no** form of this command.

ip audit interface *interface_name policy_name*

no ip audit interface *interface_name policy_name*

Syntax Description

interface_name	Specifies the interface name.
policy_name	The name of the policy you added with the **ip audit name** command. You can assign an info policy and an attack policy to each interface.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example applies audit policies to the inside and outside interfaces:

```
hostname(config)# ip audit name insidepolicy1 attack action alarm
hostname(config)# ip audit name insidepolicy2 info action alarm
hostname(config)# ip audit name outsidepolicy1 attack action reset
hostname(config)# ip audit name outsidepolicy2 info action alarm
hostname(config)# ip audit interface inside insidepolicy1
hostname(config)# ip audit interface inside insidepolicy2
hostname(config)# ip audit interface outside outsidepolicy1
hostname(config)# ip audit interface outside outsidepolicy2
```

Related Commands

Command	Description
ip audit attack	Sets the default actions for packets that match an attack signature.
ip audit info	Sets the default actions for packets that match an informational signature.
ip audit name	Creates a named audit policy that identifies the actions to take when a packet matches an attack signature or an informational signature.

Command	Description
ip audit signature	Disables a signature.
show running-config ip audit interface	Shows the configuration for the **ip audit interface** command.

ip audit name

To create a named audit policy that identifies the actions to take when a packet matches a predefined attack signature or informational signature, use the **ip audit name** command in global configuration mode. To remove the policy, use the **no** form of this command.

ip audit name *name* {**info** | **attack**} [**action** [**alarm**] [**drop**] [**reset**]]

no ip audit name *name* {**info** | **attack**} [**action** [**alarm**] [**drop**] [**reset**]]

Syntax Description

action	(Optional) Specifies that you are defining a set of actions. If you do not follow this keyword with any actions, then the ASA takes no action. If you do not enter the **action** keyword, then the ASA uses the default action set by the **ip audit attack** and **ip audit info** commands.
alarm	(Optional) Generates a system message showing that a packet matched a signature.
attack	Creates an audit policy for attack signatures; the packet might be part of an attack on your network, such as a DoS attack or illegal FTP commands.
drop	(Optional) Drops the packet.
info	Creates an audit policy for informational signatures; the packet is not currently attacking your network, but could be part of an information-gathering activity, such as a port sweep.
name	Sets the name of the policy.
reset	(Optional) Drops the packet and closes the connection.

Defaults

If you do not change the default actions using the **ip audit attack** and **ip audit info** commands, then the default action for attack signatures and informational signatures is to generate an alarm.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Signatures are activities that match known attack patterns. For example, there are signatures that match DoS attacks. To apply the policy, assign it to an interface using the **ip audit interface** command. You can assign an info policy and an attack policy to each interface.

For a list of signatures, see the **ip audit signature** command.

If traffic matches a signature, and you want to take action against that traffic, use the **shun** command to prevent new connections from the offending host and to disallow packets from any existing connection.

Examples

The following example sets an audit policy for the inside interface to generate an alarm for attack and informational signatures, while the policy for the outside interface resets the connection for attacks:

```
hostname(config)# ip audit name insidepolicy1 attack action alarm
hostname(config)# ip audit name insidepolicy2 info action alarm
hostname(config)# ip audit name outsidepolicy1 attack action reset
hostname(config)# ip audit name outsidepolicy2 info action alarm
hostname(config)# ip audit interface inside insidepolicy1
hostname(config)# ip audit interface inside insidepolicy2
hostname(config)# ip audit interface outside outsidepolicy1
hostname(config)# ip audit interface outside outsidepolicy2
```

Related Commands

Command	Description
ip audit attack	Sets the default actions for packets that match an attack signature.
ip audit info	Sets the default actions for packets that match an informational signature.
ip audit interface	Assigns an audit policy to an interface.
ip audit signature	Disables a signature.
shun	Blocks packets with a specific source and destination address.

ip audit signature

To disable a signature for an audit policy, use the **ip audit signature** command in global configuration mode. To reenable the signature, use the **no** form of this command.

ip audit signature *signature_number* **disable**

no ip audit signature *signature_number*

Syntax Description

disable	Disables the signature.
signature_number	Specifies the signature number to disable. See Table 26-1 for a list of supported signatures.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You might want to disable a signature if legitimate traffic continually matches a signature, and you are willing to risk disabling the signature to avoid large numbers of alarms. Table 26-1 lists supported signatures and system message numbers.

Table 26-1 Signature IDs and System Message Numbers

Signature ID	Message Number	Signature Title	Signature Type	Description
1000	400000	IP options-Bad Option List	Informational	Triggers on receipt of an IP datagram where the list of IP options in the IP datagram header is incomplete or malformed. The IP options list contains one or more options that perform various network management or debugging tasks.
1001	400001	IP options-Record Packet Route	Informational	Triggers on receipt of an IP datagram where the IP option list for the datagram includes option 7 (Record Packet Route).

Table 26-1 Signature IDs and System Message Numbers (continued)

Signature ID	Message Number	Signature Title	Signature Type	Description
1002	400002	IP options-Timestamp	Informational	Triggers on receipt of an IP datagram where the IP option list for the datagram includes option 4 (Timestamp).
1003	400003	IP options-Security	Informational	Triggers on receipt of an IP datagram where the IP option list for the datagram includes option 2 (Security options).
1004	400004	IP options-Loose Source Route	Informational	Triggers on receipt of an IP datagram where the IP option list for the datagram includes option 3 (Loose Source Route).
1005	400005	IP options-SATNET ID	Informational	Triggers on receipt of an IP datagram where the IP option list for the datagram includes option 8 (SATNET stream identifier).
1006	400006	IP options-Strict Source Route	Informational	Triggers on receipt of an IP datagram in which the IP option list for the datagram includes option 2 (Strict Source Routing).
1100	400007	IP Fragment Attack	Attack	Triggers when any IP datagram is received with an offset value less than 5 but greater than 0 indicated in the offset field.
1102	400008	IP Impossible Packet	Attack	Triggers when an IP packet arrives with source equal to destination address. This signature will catch the so-called Land Attack.
1103	400009	IP Overlapping Fragments (Teardrop)	Attack	Triggers when two fragments contained within the same IP datagram have offsets that indicate that they share positioning within the datagram. This could mean that fragment A is being completely overwritten by fragment B, or that fragment A is partially being overwritten by fragment B. Some operating systems do not properly handle fragments that overlap in this manner and may throw exceptions or behave in other undesirable ways upon receipt of overlapping fragments, which is how the Teardrop attack works to create a DoS.
2000	400010	ICMP Echo Reply	Informational	Triggers when a IP datagram is received with the protocol field of the IP header set to 1 (ICMP) and the type field in the ICMP header set to 0 (Echo Reply).
2001	400011	ICMP Host Unreachable	Informational	Triggers when an IP datagram is received with the protocol field of the IP header set to 1 (ICMP) and the type field in the ICMP header set to 3 (Host Unreachable).

Table 26-1 Signature IDs and System Message Numbers (continued)

Signature ID	Message Number	Signature Title	Signature Type	Description
2002	400012	ICMP Source Quench	Informational	Triggers when an IP datagram is received with the protocol field of the IP header set to 1 (ICMP) and the type field in the ICMP header set to 4 (Source Quench).
2003	400013	ICMP Redirect	Informational	Triggers when a IP datagram is received with the protocol field of the IP header set to 1 (ICMP) and the type field in the ICMP header set to 5 (Redirect).
2004	400014	ICMP Echo Request	Informational	Triggers when a IP datagram is received with the protocol field of the IP header set to 1 (ICMP) and the type field in the ICMP header set to 8 (Echo Request).
2005	400015	ICMP Time Exceeded for a Datagram	Informational	Triggers when a IP datagram is received with the protocol field of the IP header set to 1 (ICMP) and the type field in the ICMP header set to 11(Time Exceeded for a Datagram).
2006	400016	ICMP Parameter Problem on Datagram	Informational	Triggers when a IP datagram is received with the protocol field of the IP header set to 1 (ICMP) and the type field in the ICMP header set to 12 (Parameter Problem on Datagram).
2007	400017	ICMP Timestamp Request	Informational	Triggers when a IP datagram is received with the protocol field of the IP header set to 1 (ICMP) and the type field in the ICMP header set to 13 (Timestamp Request).
2008	400018	ICMP Timestamp Reply	Informational	Triggers when a IP datagram is received with the protocol field of the IP header set to 1 (ICMP) and the type field in the ICMP header set to 14 (Timestamp Reply).
2009	400019	ICMP Information Request	Informational	Triggers when a IP datagram is received with the protocol field of the IP header set to 1 (ICMP) and the type field in the ICMP header set to 15 (Information Request).
2010	400020	ICMP Information Reply	Informational	Triggers when a IP datagram is received with the protocol field of the IP header set to 1 (ICMP) and the type field in the ICMP header set to 16 (ICMP Information Reply).
2011	400021	ICMP Address Mask Request	Informational	Triggers when a IP datagram is received with the protocol field of the IP header set to 1 (ICMP) and the type field in the ICMP header set to 17 (Address Mask Request).
2012	400022	ICMP Address Mask Reply	Informational	Triggers when a IP datagram is received with the protocol field of the IP header set to 1 (ICMP) and the type field in the ICMP header set to 18 (Address Mask Reply).

Table 26-1 Signature IDs and System Message Numbers (continued)

Signature ID	Message Number	Signature Title	Signature Type	Description
2150	400023	Fragmented ICMP Traffic	Attack	Triggers when a IP datagram is received with the protocol field of the IP header set to 1 (ICMP) and either the more fragments flag is set to 1 (ICMP) or there is an offset indicated in the offset field.
2151	400024	Large ICMP Traffic	Attack	Triggers when a IP datagram is received with the protocol field of the IP header set to 1(ICMP) and the IP length > 1024.
2154	400025	Ping of Death Attack	Attack	Triggers when a IP datagram is received with the protocol field of the IP header set to 1(ICMP), the Last Fragment bit is set, and (IP offset * 8) + (IP data length) > 65535 that is to say, the IP offset (which represents the starting position of this fragment in the original packet, and which is in 8 byte units) plus the rest of the packet is greater than the maximum size for an IP packet.
3040	400026	TCP NULL flags	Attack	Triggers when a single TCP packet with none of the SYN, FIN, ACK, or RST flags set has been sent to a specific host.
3041	400027	TCP SYN+FIN flags	Attack	Triggers when a single TCP packet with the SYN and FIN flags are set and is sent to a specific host.
3042	400028	TCP FIN only flags	Attack	Triggers when a single orphaned TCP FIN packet is sent to a privileged port (having port number less than 1024) on a specific host.
3153	400029	FTP Improper Address Specified	Informational	Triggers if a port command is issued with an address that is not the same as the requesting host.
3154	400030	FTP Improper Port Specified	Informational	Triggers if a port command is issued with a data port specified that is <1024 or >65535.
4050	400031	UDP Bomb attack	Attack	Triggers when the UDP length specified is less than the IP length specified. This malformed packet type is associated with a denial of service attempt.
4051	400032	UDP Snork attack	Attack	Triggers when a UDP packet with a source port of either 135, 7, or 19 and a destination port of 135 is detected.
4052	400033	UDP Chargen DoS attack	Attack	This signature triggers when a UDP packet is detected with a source port of 7 and a destination port of 19.
6050	400034	DNS HINFO Request	Informational	Triggers on an attempt to access HINFO records from a DNS server.

Table 26-1 Signature IDs and System Message Numbers (continued)

Signature ID	Message Number	Signature Title	Signature Type	Description
6051	400035	DNS Zone Transfer	Informational	Triggers on normal DNS zone transfers, in which the source port is 53.
6052	400036	DNS Zone Transfer from High Port	Informational	Triggers on an illegitimate DNS zone transfer, in which the source port is not equal to 53.
6053	400037	DNS Request for All Records	Informational	Triggers on a DNS request for all records.
6100	400038	RPC Port Registration	Informational	Triggers when attempts are made to register new RPC services on a target host.
6101	400039	RPC Port Unregistration	Informational	Triggers when attempts are made to unregister existing RPC services on a target host.
6102	400040	RPC Dump	Informational	Triggers when an RPC dump request is issued to a target host.
6103	400041	Proxied RPC Request	Attack	Triggers when a proxied RPC request is sent to the portmapper of a target host.
6150	400042	ypserv (YP server daemon) Portmap Request	Informational	Triggers when a request is made to the portmapper for the YP server daemon (ypserv) port.
6151	400043	ypbind (YP bind daemon) Portmap Request	Informational	Triggers when a request is made to the portmapper for the YP bind daemon (ypbind) port.
6152	400044	yppasswdd (YP password daemon) Portmap Request	Informational	Triggers when a request is made to the portmapper for the YP password daemon (yppasswdd) port.
6153	400045	ypupdated (YP update daemon) Portmap Request	Informational	Triggers when a request is made to the portmapper for the YP update daemon (ypupdated) port.
6154	400046	ypxfrd (YP transfer daemon) Portmap Request	Informational	Triggers when a request is made to the portmapper for the YP transfer daemon (ypxfrd) port.
6155	400047	mountd (mount daemon) Portmap Request	Informational	Triggers when a request is made to the portmapper for the mount daemon (mountd) port.
6175	400048	rexd (remote execution daemon) Portmap Request	Informational	Triggers when a request is made to the portmapper for the remote execution daemon (rexd) port.

Table 26-1 Signature IDs and System Message Numbers (continued)

Signature ID	Message Number	Signature Title	Signature Type	Description
6180	400049	rexd (remote execution daemon) Attempt	Informational	Triggers when a call to the rexd program is made. The remote execution daemon is the server responsible for remote program execution. This may be indicative of an attempt to gain unauthorized access to system resources.
6190	400050	statd Buffer Overflow	Attack	Triggers when a large statd request is sent. This could be an attempt to overflow a buffer and gain access to system resources.

Examples

The following example disables signature 6100:

```
hostname(config)# ip audit signature 6100 disable
```

Related Commands

Command	Description
ip audit attack	Sets the default actions for packets that match an attack signature.
ip audit info	Sets the default actions for packets that match an informational signature.
ip audit interface	Assigns an audit policy to an interface.
ip audit name	Creates a named audit policy that identifies the actions to take when a packet matches an attack signature or an informational signature.
show running-config ip audit signature	Shows the configuration for the **ip audit signature** command.

ip-comp

To enable LZS IP compression, use the **ip-comp enable** command in group-policy configuration mode. To disable IP compression, use the **ip-comp disable** command.To remove the **ip-comp** attribute from the running configuration, use the **no** form of this command.

ip-comp {**enable | disable**}

no ip-comp

Syntax Description

disable	Disables IP compression.
enable	Enables IP compression.

Defaults

IP compression is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **no** form of this command enables inheritance of a value from another group policy. Enabling data compression might speed up data transmission rates for remote dial-in users connecting with modems.

Caution Data compression increases the memory requirement and CPU utilization for each user session and consequently decreases the overall throughput of the ASA. For this reason, we recommend that you enable data compression only for remote users connecting with a modem. Design a group policy specific to modem users, and enable compression only for them.

If the endpoints generate IP compression traffic, you should disable IP compression to prevent improper decompression of the packets. If IP compression is enabled on a particular LAN to LAN tunnel, host A cannot communicate with host B when trying to pass IP compression data from one side of the tunnel to other side.

Note When the **ip-comp** command is enabled and IPsec fragmentation is configured for "before-encryption," you cannot have IPsec compression (ip-comp_option and pre-encryption). The IP header sent to the crypto chip becomes obfuscated (because of the compression), causing the crypto chip to generate an error when processing the supplied outbound packet. You might also check your MTU level to ensure that it is a small amount (such as 600 bytes).

Examples

The following example shows how to enable IP compression for the group policy named "FirstGroup":

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# ip-comp enable
```

ip local pool

To configure IP address pools, use the **ip local pool** command in global configuration mode. To delete the address pool, use the **no** form of this command.

ip local pool *poolname first-address—last-address* [**mask** *mask*]

no ip local pool *poolname*

Syntax Description

first-address	Specifies the starting address in the range of IP addresses.
last-address	Specifies the final address in the range of IP addresses.
mask *mask*	(Optional) Specifies a subnet mask for the pool of addresses.
poolname	Specifies the name of the IP address pool.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	You can use an IP local pool for the cluster pool in the **ip address** command to support ASA clustering.

Usage Guidelines

You must supply the mask value when the IP addresses assigned to VPN clients belonging to a non-standard network and the data could be routed incorrectly if you use the default mask. A typical example is when the IP local pool contains 10.10.10.0/255.255.255.0 addresses, since this is a Class A network by default. This could cause some routing issues when the VPN client needs to access different subnets within the 10 network over different interfaces. For example, if a printer, address 10.10.100.1/255.255.255.0 is available via interface 2, but the 10.10.10.0 network is available over the VPN tunnel and therefore interface 1, the VPN client would be confused as to where to route data destined for the printer. Both the 10.10.10.0 and 10.10.100.0 subnets fall under the 10.0.0.0 Class A network so the printer data may be sent over the VPN tunnel.

Examples

The following example configures an IP address pool named firstpool. The starting address is 10.20.30.40 and the ending address is 10.20.30.50. The network mask is 255.255.255.0.

```
hostname(config)# ip local pool firstpool 10.20.30.40-10.20.30.50 mask 255.255.255.0
```

Related Commands

Command	Description
clear configure ip local pool	Removes all IP local pools.
show running-config ip local pool	Displays the IP pool configuration. To specify a specific IP address pool, include the name in the command.

ip-phone-bypass

To enable IP Phone Bypass, use the **ip-phone-bypass enable** command in group-policy configuration mode.To remove the IP phone Bypass attribute from the running configuration, use the **no** form of this command.

ip-phone-bypass {**enable** | **disable**}

no ip-phone-bypass

Syntax Description

disable	Disables IP Phone Bypass.
enable	Enables IP Phone Bypass.

Defaults

IP Phone Bypass is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To disable IP Phone Bypass, use the **ip-phone-bypass disable** command. The **no** form of this command option allows inheritance of a value for IP Phone Bypass from another group policy.

IP Phone Bypass lets IP phones behind hardware clients connect without undergoing user authentication processes. If enabled, secure unit authentication remains in effect.

You need to configure IP Phone Bypass only if you have enabled user authentication.

You also need to configure the **mac-exempt** option to exempt the clients from authentication. See the **vpnclient mac-exempt** command for more information.

Examples

The following example shows how to enable IP Phone Bypass for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# ip-phone-bypass enable
```

Related Commands

Command	Description
user-authentication	Requires users behind a hardware client to identify themselves to the ASA before connecting.

ips

To divert traffic from the ASA to the AIP SSM for inspection, use the **ips** command in class configuration mode. To remove this command, use the **no** form of this command.

ips {**inline** | **promiscuous**} {**fail-close** | **fail-open**} [**sensor** {*sensor_name* | *mapped_name*}]

no ips {**inline** | **promiscuous**} {**fail-close** | **fail-open**} [**sensor** {*sensor_name* | *mapped_name*}]

Syntax Description

fail-close	Blocks traffic if the AIP SSM fails.
fail-open	Permits traffic if the AIP SSM fails.
inline	Directs packets to the AIP SSM; the packet might be dropped as a result of IPS operation.
promiscuous	Duplicates packets for the AIP SSM; the original packet cannot be dropped by the AIP SSM.
sensor {*sensor_name* | *mapped_name*}	Sets the virtual sensor name for this traffic. If you use virtual sensors on the AIP SSM (using Version 6.0 or above), you can specify a sensor name using this argument. To see available sensor names, enter the **ips ... sensor ?** command. Available sensors are listed. You can also use the **show ips** command. If you use multiple context mode on the adaptive security appliance, you can only specify sensors that you assigned to the context (see the **allocate-ips** command). Use the *mapped_name* argument if configured in the context. If you do not specify a sensor name, then the traffic uses the default sensor. In multiple context mode, you can specify a default sensor for the context. In single mode or if you do not specify a default sensor in multiple mode, the traffic uses the default sensor that is set on the AIP SSM. If you enter a name that does not yet exist on the AIP SSM, you get an error, and the command is rejected.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.0(2)	Virtual sensor support was added.

Usage Guidelines

The ASA 5500 series supports the AIP SSM, which runs advanced IPS software that provides proactive, full-featured intrusion prevention services to stop malicious traffic, including worms and network viruses, before they can affect your network. Before or after you configure the **ips** command on the ASA, configure the security policy on the AIP SSM. You can either session to the AIP SSM from the ASA (the **session** command) or you can connect directly to the AIP SSM using SSH or Telnet on its mangement interface. Alternatively, you can use ASDM. For more information about configuring the AIP SSM, see *Configuring the Cisco Intrusion Prevention System Sensor Using the Command Line Interface*.

To configure the **ips** command, you must first configure the **class-map** command, **policy-map** command, and the **class** command.

The AIP SSM runs a separate application from the ASA. It is, however, integrated into the ASA traffic flow. The AIP SSM does not contain any external interfaces itself, other than a management interface. When you apply the **ips** command for a class of traffic on the ASA, traffic flows through the ASA and the AIP SSM in the following way:

1. Traffic enters the ASA.
2. Firewall policies are applied.
3. Traffic is sent to the AIP SSM over the backplane (using the **inline** keyword; See the **promiscuous** keyword for information about only sending a copy of the traffic to the AIP SSM).
4. The AIP SSM applies its security policy to the traffic, and takes appropriate actions.
5. Valid traffic is sent back to the ASA over the backplane; the AIP SSM might block some traffic according to its security policy, and that traffic is not passed on.
6. VPN policies are applied (if configured).
7. Traffic exits the ASA.

Examples

The following example diverts all IP traffic to the AIP SSM in promiscuous mode, and blocks all IP traffic if the AIP SSM card fails for any reason:

```
hostname(config)# access-list IPS permit ip any any
hostname(config)# class-map my-ips-class
hostname(config-cmap)# match access-list IPS
hostname(config-cmap)# policy-map my-ips-policy
hostname(config-pmap)# class my-ips-class
hostname(config-pmap-c)# ips promiscuous fail-close
hostname(config-pmap-c)# service-policy my-ips-policy global
```

The following example diverts all IP traffic destined for the 10.1.1.0 network and the 10.2.1.0 network to the AIP SSM in inline mode, and allows all traffic through if the AIP SSM card fails for any reason. For the my-ips-class traffic, sensor1 is used; for the my-ips-class2 traffic, sensor2 is used.

```
hostname(config)# access-list my-ips-acl permit ip any 10.1.1.0 255.255.255.0
hostname(config)# access-list my-ips-acl2 permit ip any 10.2.1.0 255.255.255.0
hostname(config)# class-map my-ips-class
hostname(config-cmap)# match access-list my-ips-acl
hostname(config)# class-map my-ips-class2
hostname(config-cmap)# match access-list my-ips-acl2
hostname(config-cmap)# policy-map my-ips-policy
```

```
hostname(config-pmap)# class my-ips-class
hostname(config-pmap-c)# ips inline fail-open sensor sensor1
hostname(config-pmap)# class my-ips-class2
hostname(config-pmap-c)# ips inline fail-open sensor sensor2
hostname(config-pmap-c)# service-policy my-ips-policy interface outside
```

Related Commands

Command	Description
allocate-ips	Assigns a virtual sensor to a security context.
class	Specifies a class map to use for traffic classification.
class-map	Identifies traffic for use in a policy map.
policy-map	Configures a policy; that is, an association of a traffic class and one or more actions.
show running-config policy-map	Displays all current policy map configurations.

ipsec-udp

To enable IPsec over UDP, use the **ipsec-udp enable** command in group-policy configuration mode. To remove the IPsec over UDP attribute from the current group policy, use the **no** form of this command.

ipsec-udp {**enable** | **disable**}

no ipsec-udp

Syntax Description

disable	Disables IPsec over UDP.
enable	Enables IPsec over UDP.

Defaults

IPsec over UDP is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **no** form of this command enables inheritance of a value for IPsec over UDP from another group policy.

IPsec over UDP, sometimes called IPsec through NAT, lets a Cisco VPN Client or hardware client connect via UDP to an ASA that is running NAT.

To disable IPsec over UDP, use the **ipsec-udp disable** command.

To use IPsec over UDP, you must also configure the **ipsec-udp-port** command.

The Cisco VPN Client must also be configured to use IPsec over UDP (it is configured to use it by default). The VPN 3002 requires no configuration to use IPsec over UDP.

IPsec over UDP is proprietary, applies only to remote access connections, and requires mode configuration, which means that the ASA exchanges configuration parameters with the client while negotiating SAs.

Using IPsec over UDP may slightly degrade system performance.

The ipsec-udp-port command is not supported on an ASA5505 operating as a VPN client. The ASA 5505 in client mode can initiate IPsec sessions on UDP ports 500 and/or 4500.

Examples

The following example shows how to configure IPsec over UDP for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# ipsec-udp enable
```

Related Commands

Command	Description
ipsec-udp-port	Specifies the port on which the ASA listens for UDP traffic.

ipsec-udp-port

To set a UDP port number for IPsec over UDP, use the **ipsec-udp-port** command in group-policy configuration mode. To disable the UDP port, use the **no** form of this command.

ipsec-udp-port *port*

no ipsec-udp-port

Syntax Description

port	Identifies the UDP port number using an integer in the range of 4001 through 49151.

Defaults

The default port is 10000.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **no** form of this command enables inheritance of a value for the IPsec over UDP port from another group policy.

In IPsec negotiations. the ASA listens on the configured port and forwards UDP traffic for that port even if other filter rules drop UDP traffic.

You can configure multiple group policies with this feature enabled, and each group policy can use a different port number.

Examples

The following example shows how to set an IPsec UDP port to port 4025 for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# ipsec-udp-port 4025
```

Related Commands

Command	Description
ipsec-udp	Lets a Cisco VPN Client or hardware client connect via UDP to an ASA that is running NAT.

ip verify reverse-path

To enable Unicast RPF, use the **ip verify reverse-path** command in global configuration mode. To disable this feature, use the **no** form of this command.

ip verify reverse-path interface *interface_name*

no ip verify reverse-path interface *interface_name*

Syntax Description

interface_name	The interface on which you want to enable Unicast RPF.

Defaults

This feature is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Unicast RPF guards against IP spoofing (a packet uses an incorrect source IP address to obscure its true source) by ensuring that all packets have a source IP address that matches the correct source interface according to the routing table.

Normally, the ASA only looks at the destination address when determining where to forward the packet. Unicast RPF instructs the ASA to also look at the source address; this is why it is called Reverse Path Forwarding. For any traffic that you want to allow through the ASA, the ASA routing table must include a route back to the source address. See RFC 2267 for more information.

For outside traffic, for example, the ASA can use the default route to satisfy Unicast RPF protection. If traffic enters from an outside interface, and the source address is not known to the routing table, the ASA uses the default route to correctly identify the outside interface as the source interface.

If traffic enters the outside interface from an address that is known to the routing table, but is associated with the inside interface, then the ASA drops the packet. Similarly, if traffic enters the inside interface from an unknown source address, the ASA drops the packet because the matching route (the default route) indicates the outside interface.

Unicast RPF is implemented as follows:

- ICMP packets have no session, so each packet is checked.

- UDP and TCP have sessions, so the initial packet requires a reverse route lookup. Subsequent packets arriving during the session are checked using an existing state maintained as part of the session. Non-initial packets are checked to ensure that they arrived on the same interface used by the initial packet.

Examples

The following example enables Unicast RPF on the outside interface:

```
hostname(config)# ip verify reverse-path interface outside
```

Related Commands

Command	Description
clear configure ip verify reverse-path	Clears the configuration set using the **ip verify reverse-path** command.
clear ip verify statistics	Clears the Unicast RPF statistics.
show ip verify statistics	Shows the Unicast RPF statistics.
show running-config ip verify reverse-path	Shows the configuration set using the **ip verify reverse-path** command.

ipv6 address through ipv6-vpn-filter Commands

ipv6 address

To enable IPv6 and configure the IPv6 addresses on an interface (in routed mode) or for the management address (transparent mode), use the **ipv6 address** command. To remove the IPv6 addresses, use the **no** form of this command.

ipv6 address {**autoconfig** | *ipv6-address*/*prefix-length* [**standby** *ipv6-prefix* | **cluster-pool** *poolname*] | *ipv6-prefix*/*prefix-length* **eui-64** | *ipv6-address* **link-local** [**standby** *ipv6-address*]}

no ipv6 address {**autoconfig** | *ipv6-address*/*prefix-length* [**standby** *ipv6-address* | **cluster-pool** *poolname*] | *ipv6-prefix*/*prefix-length* **eui-64** | *ipv6-address* **link-local** [**standby** *ipv6-address*]}

Syntax Description

autoconfig	Enables stateless autoconfiguration on the interface. Enabling stateless autoconfiguration on the interface configures IPv6 addresses based on prefixes received in router advertisement messages. A link-local address, based on the modified EUI-64 interface ID, is automatically generated for the interface when stateless autoconfiguration is enabled. Not supported for transparent firewall mode. **Note** Although RFC 4862 specifies that hosts configured for stateless autoconfiguration do not send router advertisement messages, the ASA does send router advertisement messages in this case. See the **ipv6 nd suppress-ra** command to suppress messages.
cluster-pool *poolname*	(Optional) For ASA clustering, sets the cluster pool of addresses defined by the **ipv6 local pool** command. The main cluster IP address defined by the argument belongs to the current master unit only. Each cluster member receives a local IP address from this pool. You cannot determine the exact address assigned to each unit in advance; to see the address used on each unit, enter the **show ipv6 local pool** *poolname* command. Each cluster member is assigned a member ID when it joins the cluster. The ID determines the local IP used from the pool.
ipv6-address/prefix-length	Assigns a global address to the interface. When you assign a global address, the link-local address is automatically created for the interface.

ipv6-prefix/prefix-length **eui-64**	Assigns a global address to the interface by combining the specified prefix with an interface ID generated from the interface MAC address using the modified EUI-64 format. When you assign a global address, the link-local address is automatically created for the interface. If the value specified for the *prefix-length* argument is greater than 64 bits, the prefix bits have precedence over the interface ID. An error message will be displayed if another host is using the specified address. You do not need to specify the standby address; the interface ID will be generated automatically. The modified EUI-64 format interface ID is derived from the 48-bit link-layer (MAC) address by inserting the hexadecimal number FFFE between the upper three bytes (OUI field) and the lower three bytes (serial number) of the link layer address. To ensure the chosen address is from a unique Ethernet MAC address, the next-to-lowest order bit in the high-order byte is inverted (universal/local bit) to indicate the uniqueness of the 48-bit address. For example, an interface with a MAC address of 00E0.B601.3B7A would have a 64-bit interface ID of 02E0:B6FF:FE01:3B7A.
ipv6-address **link-local**	Manually configures the link-local address only. The *ipv6-address* specified with this command overrides the link-local address that is automatically generated for the interface. The link-local address is composed of the link-local prefix FE80::/64 and the interface ID in modified EUI-64 format. An interface with a MAC address of 00E0.B601.3B7A would have a link-local address of FE80::2E0:B6FF:FE01:3B7A. An error message will be displayed if another host is using the specified address.
standby *ipv6-address*	(Optional) Specifies the interface address used by the secondary unit or failover group in a failover pair.

Defaults

IPv6 is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.2(1)	Support for transparent firewall mode was introduced.
8.2(2)	Support for a standby address was added to the command.

Release	Modification
8.4(1)	For transparent mode, bridge groups were introduced. You set the IP address for the BVI, and not globally.
9.0(1)	The **cluster-pool** keyword was introduced to support ASA clustering.

Usage Guidelines

Configuring an IPv6 address on an interface enables IPv6 on that interface; you do not need to use the **ipv6 enable** command after specifying an IPv6 address.

Multiple Context Mode Guidelines

In single context routed firewall mode, each interface address must be on a unique subnet. In multiple context mode, if this interface is on a shared interface, then each IP address must be unique but on the same subnet. If the interface is unique, this IP address can be used by other contexts if desired.

Transparent Firewall Guidelines

A transparent firewall does not participate in IP routing. The only IP configuration required for the ASA is to set the BVI address. This address is required because the ASA uses this address as the source address for traffic originating on the ASA, such as system messages or communications with AAA servers. You can also use this address for remote management access. This address must be on the same subnet as the upstream and downstream routers. For multiple context mode, set the management IP address within each context. For models that include a Management interface, you can also set an IP address for this interface for management purposes.

Failover Guidelines

The standby IP address must be on the same subnet as the main IP address.

ASA Clustering Guidelines

You can only set the cluster pool for an individual interface after you configure the cluster interface mode to be individual (**cluster-interface mode individual**). The only exception is for the management-only interface(s):

- You can always configure the management-only interface as an individual interface, even in spanned EtherChannel mode. The management interface can be an individual interface even in transparent firewall mode.
- In spanned EtherChannel mode, if you configure the management interface as an individual interface, you cannot enable dynamic routing for the management interface. You must use a static route.

Examples

The following example assigns 3FFE:C00:0:1::576/64 as the global address for the selected interface:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# ipv6 address 3ffe:c00:0:1::576/64
```

The following example assigns an IPv6 address automatically for the selected interface:

```
hostname(config)# interface gigabitethernet 0/1
hostname(config-if)# ipv6 address autoconfig
```

The following example assigns IPv6 address 3FFE:C00:0:1::/64 to the selected interface and specifies an EUI-64 interface ID in the low order 64 bits of the address. If this device is part of a failover pair, you do not need to specify the **standby** keyword; the standby address will be automatically created using the modified EUI-64 interface ID.

```
hostname(config)# interface gigabitethernet 0/2
hostname(onfig-if)# ipv6 address 3FFE:C00:0:1::/64 eui-64
```

The following example assigns FE80::260:3EFF:FE11:6670 as the link-level address for the selected interface:

```
hostname(config)# interface gigabitethernet 0/3
hostname(config-if)# ipv6 address FE80::260:3EFF:FE11:6670 link-local
```

The following example assigns 3FFE:C00:0:1::576/64 as the global address for the selected interface and 3FFE:C00:0:1::575 as the address for the corresponding interface on the standby unit:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# ipv6 address 3ffe:c00:0:1::576/64 standby 3ffe:c00:0:1::575
```

The following example assigns FE80::260:3EFF:FE11:6670 as the link-level address for the selected interface on the primary unit in a failover pair, and FE80::260:3EFF:FE11:6671 as the link-level address for the corresponding interface on the secondary unit.

```
hostname(config)# interface gigabitethernet 0/3
hostname(config-if)# ipv6 address FE80::260:3EFF:FE11:6670 link-local standby
FE80::260:3EFF:FE11:6671
```

Related Commands

Command	Description
debug ipv6 interface	Displays debugging information for IPv6 interfaces.
show ipv6 interface	Displays the status of interfaces configured for IPv6.

ipv6 dhcprelay enable

To enable DHCPv6 relay service on an interface, use the **ipv6 dhcprelay enable** command in global configuration mode. To disable the DHCPv6 relay service, use the **no** form of this command.

ipv6 dhcprelay enable *interface*

no ipv6 dhcprelay enable *interface*

Syntax Description

interface	Specifies the output interface for a destination.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

This command allows you to enable DHCPv6 relay service on an interface.When the service is enabled, incoming DHCPv6 messages from a client on the interface, which may have been relayed by another relay agent, are forwarded to all configured relay destinations through all configured outgoing links. For multiple context mode, you cannot enable DHCP relay service on an interface that is used by more than one context (that is, a shared interface).

Examples

The following example shows how to configure the DHCPv6 relay agent for a DHCPv6 server with an IP address of 3FFB:C00:C18:6:A8BB:CCFF:FE03:2701 on the ASA outside interface. Client requests are from the ASA inside interface, with a binding timeout value of 90 seconds.

```
hostname(config)# ipv6 dhcprelay server 3FFB:C00:C18:6:A8BB:CCFF:FE03:2701 outside
hostname(config)# ipv6 dhcprelay timeout 90
hostname(config)# ipv6 dhcprelay enable inside
```

Related Commands

Command	Description
ipv6 dhcprelay server	Specifies the IPv6 DHCP server destination address to which client messages are forwarded.
ipv6 dhcprelay timeout	Sets the amount of time in seconds that is allowed for responses from the DHCPv6 server to pass to the DHCPv6 client through the relay binding structure.

ipv6 dhcprelay server

To specify the IPv6 DHCP server destination address to which client messages are forwarded, use the **ipv6 dhcprelay server** command in global configuration mode. To remove the IPv6 DHCP server destination address, use the **no** form of this command.

ipv6 dhcprelay server *ipv6-address* [*interface*]

no ipv6 dhcprelay server *ipv6-address* [*interface*]

Syntax Description

interface	(Optional) Specifies the output interface for a destination.
ipv6-address	Can be a link-scoped unicast, multicast, site-scoped unicast, or global IPV6 address.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

This command enables you to specify the IPv6 DHCP server destination address to which client messages are forwarded. Client messages are forwarded to the destination address through the link to which the output interface is connected. If the specified address is a link-scoped address, then you must specify the interface. Unspecified, loopback, and node-local multicast addresses are not allowed as the relay destination. You can specify a maximum of ten servers per context.

Examples

The following example shows how to configure the DHCPv6 relay agent for a DHCPv6 server with an IP address of 3FFB:C00:C18:6:A8BB:CCFF:FE03:2701 on the ASA outside interface. Client requests are from the ASA inside interface, with a binding timeout value of 90 seconds.

```
hostname(config)# ipv6 dhcprelay server 3FFB:C00:C18:6:A8BB:CCFF:FE03:2701 outside
hostname(config)# ipv6 dhcprelay timeout 90
hostname(config)# ipv6 dhcprelay enable inside
```

Related Commands

Command	Description
ipv6 dhcprelay enable	Enables IPv6 DHCP relay service on an interface.
ipv6 dhcprelay timeout	Sets the amount of time in seconds that is allowed for responses from the DHCPv6 server to pass to the DHCPv6 client through the relay binding structure.

ipv6 dhcprelay timeout

To set the amount of time in seconds that are allowed for responses from the DHCPv6 server to pass to the DHCPv6 client through the relay binding structure, use the **ipv6 dhcprelay timeout** command in global configuration mode. To return to the default setting, use the **no** form of this command.

ipv6 dhcprelay timeout *seconds*

no ipv6 dhcprelay timeout *seconds*

Syntax Description

seconds	Sets the number of seconds that are allowed for DHCPv6 relay address negotiation. Valid values range from 1 to 3600.

Defaults

The default is 60 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

This command allows you to set the amount of time in seconds that are allowed for responses from the DHCPv6 server to pass to the DHCPv6 client through the relay binding structure.

Examples

The following example shows how to configure the DHCPv6 relay agent for a DHCPv6 server with an IP address of 3FFB:C00:C18:6:A8BB:CCFF:FE03:2701 on the ASA outside interface. Client requests are from the ASA inside interface, with a binding timeout value of 90 seconds.

```
hostname(config)# ipv6 dhcprelay server 3FFB:C00:C18:6:A8BB:CCFF:FE03:2701 outside
hostname(config)# ipv6 dhcprelay timeout 90
hostname(config)# ipv6 dhcprelay enable inside
```

Related Commands

Command	Description
ipv6 dhcprelay server	Specifies the IPv6 DHCP server destination address to which client messages are forwarded.
ipv6 dhcprelay enable	Specifies the IPv6 DHCP server destination address to which client messages are forwarded.

ipv6 enable

To enable IPv6 processing and you have not already configured an explicit IPv6 address, use the **ipv6 enable** command in global configuration mode. To disable IPv6 processing on an interface that has not been configured with an explicit IPv6 address, use the **no** form of this command.

ipv6 enable

no ipv6 enable

Syntax Description

This command has no arguments or keywords.

Defaults

IPv6 is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	•	—
Global configuration	—	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.2(1)	Support for transparent firewall mode was introduced.

Usage Guidelines

The **ipv6 enable** command automatically configures an IPv6 link-local unicast address on the interface, while also enabling the interface for IPv6 processing.

The **no ipv6 enable** command does not disable IPv6 processing on an interface that is configured with an explicit IPv6 address.

Examples

The following example enables IPv6 processing on the selected interface:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# ipv6 enable
```

Related Commands

Command	Description
ipv6 address	Configures an IPv6 address for an interface and enables IPv6 processing on the interface.
show ipv6 interface	Displays the usability status of interfaces configured for IPv6.

ipv6 enforce-eui64

To enforce the use of modified EUI-64 format interface identifiers in IPv6 addresses on a local link, use the **ipv6 enforce-eui64** command in global configuration mode. To disable modified EUI-64 address format enforcement, use the **no** form of this command.

ipv6 enforce-eui64 *if_name*

no ipv6 enforce-eui64 *if_name*

Syntax Description

if_name	Specifies the name of the interface, as designated by the **nameif** command, for which you are enabling modified EUI-64 address format enforcement.

Defaults

Modified EUI-64 format enforcement is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.
8.2(1)	Support for transparent firewall mode was introduced.

Usage Guidelines

When this command is enabled on an interface, the source addresses of IPv6 packets received on that interface are verified against the source MAC addresses to ensure that the interface identifiers use the modified EUI-64 format. If the IPv6 packets do not use the modified EUI-64 format for the interface identifier, the packets are dropped and the following syslog message is generated:

```
%ASA-3-325003: EUI-64 source address check failed.
```

The address format verification is only performed when a flow is created. Packets from an existing flow are not checked. Additionally, the address verification can only be performed for hosts on the local link. Packets received from hosts behind a router will fail the address format verification, and be dropped, because their source MAC address will be the router MAC address and not the host MAC address.

The modified EUI-64 format interface identifier is derived from the 48-bit link-layer (MAC) address by inserting the hexadecimal number FFFE between the upper three bytes (OUI field) and the lower three bytes (serial number) of the link layer address. To ensure the chosen address is from a unique Ethernet MAC address, the next-to-lowest order bit in the high-order byte is inverted (universal/local bit) to indicate the uniqueness of the 48-bit address. For example, an interface with a MAC address of 00E0.B601.3B7A would have a 64-bit interface ID of 02E0:B6FF:FE01:3B7A.

Examples

The following example enables modified EUI-64 format enforcement for IPv6 addresses received on the inside interface:

```
hostname(config)# ipv6 enforce-eui64 inside
```

Related Commands

Command	Description
ipv6 address	Configures an IPv6 address on an interface.
ipv6 enable	Enables IPv6 on an interface.

ipv6 icmp

To configure ICMP access rules for an interface, use the **ipv6 icmp** command in global configuration mode. To remove an ICMP access rule, use the **no** form of this command.

ipv6 icmp {**permit | deny**} {*ipv6-prefix/prefix-length* | **any** | **host** *ipv6-address*} [*icmp-type*] *if-name*

no ipv6 icmp {**permit | deny**} {*ipv6-prefix/prefix-length* | **any** | **host** *ipv6-address*} [*icmp-type*] *if-name*

Syntax Description

any	Keyword specifying any IPv6 address. An abbreviation for the IPv6 prefix ::/0.
deny	Prevents the specified ICMP traffic on the selected interface.
host	Indicates that the address refers to a specific host.
icmp-type	Specifies the ICMP message type being filtered by the access rule. The value can be a valid ICMP type number (from 0 to 255) or one of the following ICMP type literals: • destination-unreachable • packet-too-big • time-exceeded • parameter-problem • echo-request • echo-reply • membership-query • membership-report • membership-reduction • router-renumbering • router-solicitation • router-advertisement • neighbor-solicitation • neighbor-advertisement • neighbor-redirect
if-name	The name of the interface, as designated by the **nameif** command, to which the access rule applies.
ipv6-address	The IPv6 address of the host sending ICMPv6 messages to the interface.
ipv6-prefix	The IPv6 network that is sending ICMPv6 messages to the interface.
permit	Allows the specified ICMP traffic on the selected interface.
prefix-length	The length of the IPv6 prefix. This value indicates how many of the high-order, contiguous bits of the address comprise the network portion of the prefix. The slash (/) must precede the prefix length.

Defaults

If no ICMP access rules are defined, all ICMP traffic is permitted.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.2(1)	Support for transparent firewall mode was introduced.

Usage Guidelines

ICMP in IPv6 functions the same as ICMP in IPv4. ICMPv6 generates error messages, such as ICMP destination unreachable messages and informational messages like ICMP echo request and reply messages. Additionally, ICMP packets in IPv6 are used in the IPv6 neighbor discovery process and path MTU discovery.

The minimum MTU allowed on an IPv6 enabled interface is 1280 bytes; however, if IPsec is enabled on the interface, the MTU value should not be set below 1380 because of the overhead of IPsec encryption. Setting the interface below 1380 bytes may result in dropped packets.

If there are no ICMP rules defined for an interface, all IPv6 ICMP traffic is permitted.

If there are ICMP rules defined for an interface, then the rules are processed in order on a first-match basis followed by an implicit deny all rule. For example, if the first matched rule is a permit rule, the ICMP packet is processed. If the first matched rule is a deny rule, or if the ICMP packet did not match any rule on that interface, then the ASA discards the ICMP packet and generates a syslog message.

For this reason, the order that you enter the ICMP rules is important. If you enter a rule denying all ICMP traffic from a specific network, and then follow it with a rule permitting ICMP traffic from a particular host on that network, the host rule will never be processed. The ICMP traffic is blocked by the network rule. However, if you enter the host rule first, followed by the network rule, the host ICMP traffic will be allowed, while all other ICMP traffic from that network is blocked.

The **ipv6 icmp** command configures access rules for ICMP traffic that terminates at the ASA interfaces. To configure access rules for pass-through ICMP traffic, see the **ipv6 access-list** command.

Examples

The following example denies all ping requests and permits all packet-too-big messages (to support path MTU discovery) at the outside interface:

```
hostname(config)# ipv6 icmp deny any echo-reply outside
hostname(config)# ipv6 icmp permit any packet-too-big outside
```

The following example permits host 2000:0:0:4::2 or hosts on prefix 2001::/64 to ping the outside interface:

```
hostname(config)# ipv6 icmp permit host 2000:0:0:4::2 echo-reply outside
hostname(config)# ipv6 icmp permit 2001::/64 echo-reply outside
hostname(config)# ipv6 icmp permit any packet-too-big outside
```

Related Commands

Command	Description
ipv6 access-list	Configures access lists.

ipv6 local pool

To configure an IPv6 address pool, use the **ipv6 local pool** command in global configuration mode. To delete the pool, use the **no** form of this command.

ipv6 local pool *pool_name ipv6_address/prefix_length number_of_addresses*

no ipv6 local pool *pool_name ipv6_address/prefix_length number_of_addresses*

Syntax Description

ipv6_address	Specifies the starting IPv6 address for the pool.
number_of_addresses	Range: 1-16384.
pool_name	Specifies the name to assign to this IPv6 address pool.
prefix_length	Range: 0-128.

Defaults

By default, the IPv6 local address pool is not configured.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	You can use an IPv6 local pool for the cluster pool in the **ipv6 address** command to support ASA clustering.

Usage Guidelines

For VPN, to assign IPv6 local pools, use either the **ipv6-local-pool** command in the tunnel group or the **ipv6-address-pools** command (note the "s" on this command) in the group policy. The ipv6-address-pools setting in the group policy overrides the ipv6-address-pools setting in the tunnel group.

Examples

The following example configures an IPv6 address pool named firstipv6pool for use in allocating addresses to remote clients:

```
hostname(config)# ipv6 local pool firstipv6pool 2001:DB8::1001/32 100
hostname(config)#
```

Related Commands

Command	Description
ipv6-address-pool	Associates IPv6 address pools with a VPN tunnel group policy.
ipv6-address-pools	Associates IPv6 address pools with a VPN group policy.
clear configure ipv6 local pool	Clears all configured IPv6 local pools.
show running-config ipv6	Shows the configuration for IPv6.

ipv6 nd dad attempts

To configure the number of consecutive neighbor solicitation messages that are sent on an interface during duplicate address detection, use the **ipv6 nd dad attempts** command in interface configuration mode. To return to the default number of duplicate address detection messages sent, use the **no** form of this command.

ipv6 nd dad attempts *value*

no ipv6 nd dad attempts *value*

Syntax Description

value	A number from 0 to 600. Entering 0 disables duplicate address detection on the specified interface. Entering 1 configures a single transmission without follow-up transmissions. The default value is 1 message.

Defaults

The default number of attempts is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.2(1)	Support for transparent firewall mode was introduced.

Usage Guidelines

Duplicate address detection verifies the uniqueness of new unicast IPv6 addresses before the addresses are assigned to interfaces (the new addresses remain in a tentative state while duplicate address detection is performed). Duplicate address detection uses neighbor solicitation messages to verify the uniqueness of unicast IPv6 addresses. The frequency at which the neighbor solicitation messages are sent is configured using the **ipv6 nd ns-interval** command.

Duplicate address detection is suspended on interfaces that are administratively down. While an interface is administratively down, the unicast IPv6 addresses assigned to the interface are set to a pending state.

Duplicate address detection is automatically restarted on an interface when the interface returns to being administratively up. An interface returning to administratively up restarts duplicate address detection for all of the unicast IPv6 addresses on the interface.

Note While duplicate address detection is performed on the link-local address of an interface, the state for the other IPv6 addresses is still set to tentative. When duplicate address detection is completed on the link-local address, duplicate address detection is performed on the remaining IPv6 addresses.

When duplicate address detection identifies a duplicate address, the state of the address is set to DUPLICATE and the address is not used. If the duplicate address is the link-local address of the interface, the processing of IPv6 packets is disabled on the interface and an error message similar to the following is issued:

```
%ASA-4-DUPLICATE: Duplicate address FE80::1 on outside
```

If the duplicate address is a global address of the interface, the address is not used and an error message similar to the following is issued:

```
%ASA-4-DUPLICATE: Duplicate address 3000::4 on outside
```

All configuration commands associated with the duplicate address remain as configured while the state of the address is set to DUPLICATE.

If the link-local address for an interface changes, duplicate address detection is performed on the new link-local address and all of the other IPv6 address associated with the interface are regenerated (duplicate address detection is performed only on the new link-local address).

Examples

The following example configures 5 consecutive neighbor solicitation messages to be sent when duplicate address detection is being performed on the tentative unicast IPv6 address of the interface:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# ipv6 nd dad attempts 5
```

The following example disables duplicate address detection on the selected interface:

```
hostname(config)# interface gigabitethernet 0/1
hostname(config-if)# ipv6 nd dad attempts 0
```

Related Commands

Command	Description
ipv6 nd ns-interval	Configures the interval between IPv6 neighbor solicitation transmissions on an interface.
show ipv6 interface	Displays the usability status of interfaces configured for IPv6.

ipv6 nd managed-config-flag

To configure the ASA to set the managed address config flag in the IPv6 router advertisement packet, use the **ipv6 nd managed config-flag** command in interface configuration mode. To restore the default setting, use the **no** form of this command.

ipv6 nd managed-config-flag

no ipv6 managed-config-flag

Syntax Description

This command has no arguments or keywords.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

The IPv6 autoconfiguration client host can use this flag to indicate that it must use the stateful address configuration protocol (DHCPv6) to obtain addresses in addition to the derived stateless autoconfiguration address.

Examples

The following example sets the managed address config flag in the IPv6 router advertisement packet for the interface GigabitEthernet 0/0:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# ipv6 nd managed config-flag
```

Related Commands

Command	Description
ipv6 nd other-config-flag	Configures the ASA to set the other config flag in the IPv6 router advertisement packet.

ipv6 nd ns-interval

To configure the interval between IPv6 neighbor solicitation retransmissions on an interface, use the **ipv6 nd ns-interval** command in interface configuration mode. To restore the default value, use the **no** form of this command.

ipv6 nd ns-interval *value*

no ipv6 nd ns-interval [*value*]

Syntax Description

value	The interval between IPv6 neighbor solicitation transmissions, in milliseconds. Valid values range from 1000 to 3600000 milliseconds. The default value is 1000 milliseconds.

Defaults

The default is 1000 milliseconds between neighbor solicitation transmissions.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.2(1)	Support for transparent firewall mode was introduced.

Usage Guidelines

This value will be included in all IPv6 router advertisements sent out this interface.

Examples

The following example configures an IPv6 neighbor solicitation transmission interval of 9000 milliseconds for GigabitEthernet 0/0:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# ipv6 nd ns-interval 9000
```

Related Commands

Command	Description
show ipv6 interface	Displays the usability status of interfaces configured for IPv6.

ipv6 nd other-config-flag

To configure the ASA to set the other config flag in the IPv6 router advertisement packet, use the **ipv6 nd other-config-flag** command in interface configuration mode. To restore the default setting, use the **no** form of this command.

ipv6 nd other-config-flag

no ipv6 other-config-flag

Syntax Description

This command has no arguments or keywords.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

The IPv6 autoconfiguration client host can use this flag to indicate that it must use the stateful address configuration protocol (DHCPv6) to obtain non-address configuration information such as DNS server information.

Examples

The following example sets the other config flag in the IPv6 router advertisement packet for the interface GigabitEthernet 0/0:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# ipv6 nd other-config-flag
```

Related Commands

Command	Description
ipv6 nd managed-config-flag	Configures the ASA to set the managed address config flag in the IPv6 router advertisement packet.

ipv6 nd prefix

To configure which IPv6 prefixes are included in IPv6 router advertisements, use the **ipv6 nd prefix** command in interface configuration mode. To remove the prefixes, use the **no** form of this command.

ipv6 nd prefix *ipv6-prefix/prefix-length* | **default** [[*valid-lifetime preferred-lifetime*] | [**at** *valid-date preferred-date*] | **infinite** | **no-advertise** | **off-link** | **no-autoconfig**]

no ipv6 nd prefix *ipv6-prefix/prefix-length* | **default** [[*valid-lifetime preferred-lifetime*] | [**at** *valid-date preferred-date*] | **infinite** | **no-advertise** | **off-link** | **no-autoconfig**]

Syntax Description

at *valid-date preferred-date*	The date and time at which the lifetime and preference expire. The prefix is valid until this specified date and time are reached. Dates are expressed in the form *date-valid-expire month-valid-expire hh:mm-valid-expire date-prefer-expire month-prefer-expire hh:mm-prefer-expire*.
default	Default values are used.
infinite	(Optional) The valid lifetime does not expire.
ipv6-prefix	The IPv6 network number to include in router advertisements. This argument must be in the form documented in RFC 2373, in which the address is specified in hexadecimal format using 16-bit values between colons.
no-advertise	(Optional) Indicates to hosts on the local link that the specified prefix is not to be used for IPv6 autoconfiguration.
no-autoconfig	(Optional) Indicates to hosts on the local link that the specified prefix cannot be used for IPv6 autoconfiguration.
off-link	(Optional) Indicates that the specified prefix is not used for on-link determination.
preferred-lifetime	The amount of time (in seconds) that the specified IPv6 prefix is advertised as being preferred. Valid values range from 0 to 4294967295 seconds. The maximum value represents infinity, which can also be specified with the **infinite** keyword. The default is 604800 (7 days).
prefix-length	The length of the IPv6 prefix. This value indicates how many of the high-order, contiguous bits of the address comprise the network portion of the prefix. The slash (/) must precede the prefix length.
valid-lifetime	The amount of time that the specified IPv6 prefix is advertised as being valid. Valid values range from 0 to 4294967295 seconds. The maximum value represents infinity, which can also be specified with the **infinite** keyword. The default is 2592000 (30 days).

Defaults

All prefixes configured on interfaces that originate IPv6 router advertisements are advertised with a valid lifetime of 2592000 seconds (30 days) and a preferred lifetime of 604800 seconds (7 days), and with both the “onlink” and “autoconfig” flags set.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command allows control over the individual parameters per prefix, including whether or not the prefix should be advertised.

By default, prefixes configured as addresses on an interface using the **ipv6 address** command are advertised in router advertisements. If you configure prefixes for advertisement using the **ipv6 nd prefix** command, then only these prefixes are advertised.

The **default** keyword can be used to set default parameters for all prefixes.

A date can be set to specify the expiration of a prefix. The valid and preferred lifetimes are counted down in real time. When the expiration date is reached, the prefix will no longer be advertised.

When onlink is “on” (by default), the specified prefix is assigned to the link. Nodes sending traffic to such addresses that contain the specified prefix consider the destination to be locally reachable on the link.

When autoconfig is “on” (by default), it indicates to hosts on the local link that the specified prefix can be used for IPv6 autoconfiguration.

Examples

The following example includes the IPv6 prefix 2001:200::/35, with a valid lifetime of 1000 seconds and a preferred lifetime of 900 seconds in router advertisements sent out on the specified interface:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# ipv6 nd prefix 2001:200::/35 1000 900
```

Related Commands

Command	Description
ipv6 address	Configures an IPv6 address and enables IPv6 processing on an interface.
show ipv6 interface	Displays the usability status of interfaces configured for IPv6.

ipv6 nd ra-interval

To configure the interval between IPv6 router advertisement transmissions on an interface, use the **ipv6 nd ra-interval** command in interface configuration mode. To restore the default interval, use the **no** form of this command.

ipv6 nd ra-interval [**msec**] *value*

no ipv6 nd ra-interval [[**msec**] *value*]

Syntax Description

msec	(Optional) indicates that the value provided is in milliseconds. If this keyword is not present, the value provided is seconds.
value	The interval between IPv6 router advertisement transmissions. Valid values range from 3 to 1800 seconds, or from 500 to 1800000 milliseconds if the **msec** keyword is provided. The default is 200 seconds.

Defaults

200 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The interval between transmissions should be less than or equal to the IPv6 router advertisement lifetime if the ASA is configured as a default router by using the **ipv6 nd ra-lifetime** command. To prevent synchronization with other IPv6 nodes, randomly adjust the actual value used to within 20 percent of the specified value.

Examples

The following example configures an IPv6 router advertisement interval of 201 seconds for the selected interface:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# ipv6 nd ra-interval 201
```

Related Commands

Command	Description
ipv6 nd ra-lifetime	Configures the lifetime of an IPv6 router advertisement.
show ipv6 interface	Displays the usability status of interfaces configured for IPv6.

ipv6 nd ra-lifetime

To configure the "router lifetime" value in IPv6 router advertisements on an interface, use the **ipv6 nd ra-lifetime** command in interface configuration mode. To restore the default value, use the **no** form of this command.

ipv6 nd ra-lifetime *seconds*

no ipv6 nd ra-lifetime [*seconds*]

Syntax Description

seconds	The validity of the ASA as a default router on this interface. Valid values range from 0 to 9000 seconds. The default is 1800 seconds. 0 indicates that the ASA should not be considered a default router on the selected interface.

Defaults

1800 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The "router lifetime" value is included in all IPv6 router advertisements sent out an interface. The value indicates the usefulness of the ASA as a default router on this interface.

Setting the value to a non-zero value to indicates that the ASA should be considered a default router on this interface. The non-zero value for the "router lifetime" value should not be less than the router advertisement interval.

Setting the value to 0 indicates that the ASA should not be considered a default router on this interface.

Examples

The following example configures an IPv6 router advertisement lifetime of 1801 seconds for the selected interface:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# ipv6 nd ra-lifetime 1801
```

Related Commands

Command	Description
ipv6 nd ra-interval	Configures the interval between IPv6 router advertisement transmissions on an interface.
show ipv6 interface	Displays the usability status of interfaces configured for IPv6.

ipv6 nd reachable-time

To configure the amount of time that a remote IPv6 node is considered reachable after a reachability confirmation event has occurred, use the **ipv6 nd reachable-time** command in interface configuration mode. To restore the default time, use the **no** form of this command.

ipv6 nd reachable-time *value*

no ipv6 nd reachable-time [*value*]

Syntax Description

value	The amount of time, in milliseconds, that a remote IPv6 node is considered reachable. Valid values range from 0 to 3600000 milliseconds. The default value is 0. When 0 is used for the *value* argument, the reachable time is sent as undetermined. It is up to the receiving devices to set and track the reachable time value.

Defaults

Zero milliseconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.2(1)	Support for transparent firewall mode was introduced.

Usage Guidelines

The configured time enables detecting unavailable neighbors. Shorter configured times enable detecting unavailable neighbors more quickly; however, shorter times consume more IPv6 network bandwidth and processing resources in all IPv6 network devices. Very short configured times are not recommended in normal IPv6 operation.

To see the reachable time used by the ASA, including the actual value when this comamnd is set to 0, use the **show ipv6 interface** command to display information about the IPv6 interface, including the ND reachable time being used.

Examples

The following example configures an IPv6 reachable time of 1700000 milliseconds for the selected interface:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# ipv6 nd reachable-time 1700000
```

Related Commands

Command	Description
show ipv6 interface	Displays the usability status of interfaces configured for IPv6.

ipv6 nd suppress-ra

To suppress IPv6 router advertisement transmissions on a LAN interface, use the **ipv6 nd suppress-ra** command in interface configuration mode. To reenable the sending of IPv6 router advertisement transmissions on a LAN interface, use the **no** form of this command.

ipv6 nd suppress-ra

no ipv6 nd suppress-ra

Syntax Description

This command has no arguments or keywords.

Defaults

Router advertisements are automatically sent on LAN interfaces if IPv6 unicast routing is enabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Use the **no ipv6 nd suppress-ra** command to enable the sending of IPv6 router advertisement transmissions on non-LAN interface types (for example serial or tunnel interfaces).

Examples

The following example suppresses IPv6 router advertisements on the selected interface:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# ipv6 nd suppress-ra
```

Related Commands

Command	Description
show ipv6 interface	Displays the usability status of interfaces configured for IPv6.

ipv6 neighbor

To configure a static entry in the IPv6 neighbor discovery cache, use the **ipv6 neighbor** command in global configuration mode. To remove a static entry from the neighbor discovery cache, use the **no** form of this command.

ipv6 neighbor *ipv6_address if_name mac_address*

no ipv6 neighbor *ipv6_address if_name* [*mac_address*]

Syntax Description

if_name	The internal or external interface name designated by the **nameif** command.
ipv6_address	The IPv6 address that corresponds to the local data link address.
mac_address	The local data line (hardware MAC) address.

Defaults

Static entries are not configured in the IPv6 neighbor discovery cache.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.2(1)	Support for transparent firewall mode was introduced.

Usage Guidelines

The **ipv6 neighbor** command is similar to the **arp** command. If an entry for the specified IPv6 address already exists in the neighbor discovery cache—learned through the IPv6 neighbor discovery process—the entry is automatically converted to a static entry. These entries are stored in the configuration when the **copy** command is used to store the configuration.

Use the **show ipv6 neighbor** command to view static entries in the IPv6 neighbor discovery cache.

The **clear ipv6 neighbors** command deletes all entries in the IPv6 neighbor discovery cache except static entries. The **no ipv6 neighbor** command deletes a specified static entry from the neighbor discovery cache; the command does not remove dynamic entries—entries learned from the IPv6 neighbor discovery process—from the cache. Disabling IPv6 on an interface by using the **no ipv6 enable** command deletes all IPv6 neighbor discovery cache entries configured for that interface except static entries (the state of the entry changes to INCMP [Incomplete]).

Static entries in the IPv6 neighbor discovery cache are not modified by the neighbor discovery process.

Examples

The following example adds a static entry for the an inside host with an IPv6 address of 3001:1::45A and a MAC address of 0002.7D1A.9472 to the neighbor discovery cache:

```
hostname(config)# ipv6 neighbor 3001:1::45A inside 0002.7D1A.9472
```

Related Commands

Command	Description
clear ipv6 neighbors	Deletes all entries in the IPv6 neighbor discovery cache, except static entries.
show ipv6 neighbor	Displays IPv6 neighbor cache information.

ipv6 ospf

To enable the OSPFv3 interface configuration for IPv6, use the **ipv6 ospf** command in global configuration mode. To disable the OSPFv3 interface configuration for IPv6, use the **no** form of this command.

ipv6 ospf [*process-id*] [**cost** | **database-filter** | **dead-interval** *seconds* | **flood-reduction** | **hello-interval** *seconds* | **mtu-ignore** | **neighbor** | **network** | **priority** | **retransmit-interval** *seconds* | **transmit-delay** *seconds*]

no ipv6 ospf [*process-id*] [**cost** | **database-filter** | **dead-interval** *seconds* | **flood-reduction** | **hello-interval** *seconds* | **mtu-ignore** | **neighbor** | **network** | **priority** | **retransmit-interval** *seconds* | **transmit-delay** *seconds*]

Syntax Description

cost	Explicitly specifies the cost of sending a packet on an interface.
database-filter	Filters outgoing LSAs to an OSPFv3 interface.
dead-interval *seconds*	Sets the time period in seconds for which hello packets must not be seen before neighbors indicate that the router is down. The value must be the same for all nodes on the network and can range from 1 to 65535. The default is four times the interval set by the **ipv6 ospf hello-interval** command.
flood-reduction	Specifies the flood reduction of LSAs to the interface.
hello-interval *seconds*	Specifies the interval in seconds between hello packets sent on the interface. The value must be the same for all nodes on a specific network and can range from 1 to 65535. The default interval is 10 seconds for Ethernet interfaces and 30 seconds for non-broadcast interfaces.
mtu-ignore	Disables the OSPF MTU mismatch detection when DBD packets are received. OSPF MTU mismatch detection is enabled by default.
neighbor	Configures OSPFv3 router interconnections to non-broadcast networks.
network	Sets the OSPF network type to a type other than the default, which depends on the network type.
priority	Sets the router priority, which helps determine the designated router for a network. Valid values range from 0 to 255.
process-id	Specifies the OSPFv3 process to be enabled. Valid values range from 1 to 65535.
retransmit-interval *seconds*	Specifies the time in seconds between LSA retransmissions for adjacencies that belong to the interface. The time must be greater than the expected round-trip delay between any two routers on the attached network. Valid values range from 1 to 65535 seconds. The default is 5 seconds.
transmit-delay *seconds*	Sets the estimated time in seconds to send a link-state update packet on the interface. Valid values range from 1 to 65535 seconds. The default is 1 second.

Defaults

All IPv6 addresses are included by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

You must enable an OSPFv3 routing process before you can create an OSPFv3 area.

Examples

The following example enables OSPFv3 interface configuration:

```
hostname(config)# ipv6 ospf 3
```

Related Commands

Command	Description
clear ipv6 ospf	Deletes all IPv6 settings in the OSPFv3 routing process.
debug ospfv3	Provides debugging information for troubleshooting OSPFv3 routing processes.

ipv6 ospf area

To create an OSPFv3 area for IPv6, use the **ipv6 ospf area** command in global configuration mode. To disable the OSPFv3 area configuration for IPv6, use the **no** form of this command.

ipv6 ospf area [*area-num*] [**instance**]

no ipv6 ospf area [*area-num*] [**instance**]

Syntax Description

area-num	Specifies the OSPFv3 area to be enabled.
instance	Specifies the area instance ID that is to be assigned to an interface.

Defaults

All IPv6 addresses are included by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

You must configure OSPFv3 routing on each interface separately. An interface can have only one OSPFv3 area, and OSPFv3 for the ASA supports only one instance per interface. Each interface uses a different area instance ID. The area instance ID only affects the receipt of OSPF packets, and applies to normal OSPF interfaces and virtual links.

Examples

The following example enables OSPFv3 interface configuration:

```
hostname(config)# ipv6 ospf 3 area 2
```

Related Commands

Command	Description
clear ipv6 ospf	Deletes all IPv6 settings in the OSPFv3 routing process.
debug ospfv3	Provides debugging information for troubleshooting OSPFv3 routing processes.

ipv6 ospf cost

To explicitly specify the cost of sending a packet on an interface, use the **ipv6 ospf cost** command in interface configuration mode. To reset the cost of sending a packet on an interface to the default value, use the **no** form of this command.

ipv6 ospf cost *interface-cost*

no ipv6 ospf cost *interface-cost*

Syntax Description

interface-cost	Specifies an unsigned integer value expressed as the link-state metric, which can range from 1 to 65535.

Defaults

The default cost is based on the bandwidth.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Use this command to explicitly specify the packet cost for an interface.

Examples

The following example sets the packet cost to 65:

```
hostname(config-if)# ipv6 ospf cost 65
```

Related Commands

Command	Description
clear ipv6 ospf	Deletes all IPv6 settings in the OSPFv3 routing process.
debug ospfv3	Provides debugging information for troubleshooting OSPFv3 routing processes.

ipv6 ospf database-filter all out

To filter outgoing LSAs to an OSPFv3 interface, use the **ipv6 ospf databse-filter all out** command in interface configuration mode. To restore the forwarding of LSAs to the interface, use the **no** form of this command.

ipv6 ospf database-filter all out

no ipv6 ospf database-filter all out

Syntax Description

This command has no arguments or keywords.

Defaults

All outgoing LSAs are flooded to the interface.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Use this command to filter outgoing LSAs to an OSPFv3 interface.

Examples

The following example filters outgoing LSAs to the specified interface:

```
hostname(config)# interface ethernet 0
hostname(config)# ipv6 enable
hostname(config-if)# ipv6 ospf database-filter all out
```

Related Commands

Command	Description
clear ipv6 ospf	Deletes all IPv6 settings in the OSPFv3 routing process.
debug ospfv3	Provides debugging information for troubleshooting OSPFv3 routing processes.

ipv6 ospf dead-interval

To set the time period for which hello packets must not be seen before neighbors declare that the router is down, use the **ipv6 ospf dead-interval** command in interface configuration mode. To return to the default time, use the **no** form of this command.

ipv6 ospf dead-interval *seconds*

no ipv6 ospf dead-interval *seconds*

Syntax Description

seconds	Specifies the interval in seconds. The value must be the same for all nodes in the network. Valid values range from 1 to 65535.

Defaults

The default is four times the interval that is set by the **ipv6 ospf hello-interval** command.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Use this command to specify the interval during which hello packets are not seen before neighbors notify that the router is down.

Examples

The following example sets the dead interval to 60:

```
hostname(config)# interface ethernet 0
hostname(config)# ipv6 enable
hostname(config-if)# ipv6 ospf dead-interval 60
```

Related Commands

Command	Description
clear ipv6 ospf	Deletes all IPv6 settings in the OSPFv3 routing process.
debug ospfv3	Provides debugging information for troubleshooting OSPFv3 routing processes.

ipv6 ospf encryption

To specify the encryption type for an interface, use the **ipv6 ospf encryption** command in interface configuration mode. To remove the encryption type for an interface, use the **no** form of this command.

ipv6 ospf encryption {**ipsec spi** *spi* **esp** *encryption-algorithm* [[*key-encryption-type*] *key*] *authentication-algorithm* [*key-encryption-type*] *key* | **null**}

no ipv6 ospf encryption {**ipsec spi** *spi* **esp** *encryption-algorithm* [[*key-encryption-type*] *key*] *authentication-algorithm* [*key-encryption-type*] *key* | **null**}

Syntax Description

authentication-algorithm	Specifies the encryption algorithm to be used. Valid values are one of the following: • **md5**—Enables message digest 5 (MD5). • **sha1**—Enables SHA-1.
encryption-algorithm	Specifies the encryption algorithm to be used with ESP. Valid values are the following: • **aes-cdc**—Enables AES-CDC encryption. • **3des**—Enables 3DES encryption. • **des**—Enables DES encryption. • **null**—Specifies ESP with no encryption.
esp	Specifies the encapsulating security payload (ESP).
ipsec	Specifies the IP security protocol.
key	Specifies the number used in the calculation of the message digest. When MD5 authentication is used, the key must be 32 hexadecimal digits (16 bytes) long. When SHA-1 authentication is used, the key must be 40 hexadecimal digits (20 bytes) long.
key-encryption-type	(Optional) Specifes the key encryption type, which can be one of the following values: • **0**—The key is not encrypted. • **7**—The key is encrypted.
null	Overrides area authentication.
spi *spi*	Specifies the security policy index (SPI) value. The *spi* value must be a number from 256 to 4294967295, which is entered as a decimal.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Use this command to specify the encryption type for an interface.

Examples

The following example enables SHA-1 encryption on the interface:

```
hostname(config)# interface ethernet 0/0
hostname(config)# ipv6 enable
hostname(config-if)# ipv6 ospf encryption ipsec spi 1001 esp null sha1
123456789A123456789B123456789C123456789D
```

Related Commands

Command	Description
clear ipv6 ospf	Deletes all IPv6 settings in the OSPFv3 routing process.
debug ospfv3	Provides debugging information for troubleshooting OSPFv3 routing processes.

ipv6 ospf flood-reduction

To specify the flood reduction of LSAs to the interface, use the **ipv6 ospf flood-reduction** command in interface configuration mode. To remove the flood reduction of LSAs to the interface, use the **no** form of this command.

ipv6 ospf flood-reduction

no ipv6 ospf flood-reduction

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Use this command to specify the flood reduction of LSAs to an interface.

Examples

The following example enables flood reduction of LSAs to the interface:

```
hostname(config-if)# interface GigabitEthernet3/2.200
 vlan 200
 nameif outside
 security-level 100
 ip address 20.20.200.30 255.255.255.0 standby 20.20.200.31
 ipv6 address 3001::1/64 standby 3001::8
 ipv6 address 6001::1/64 standby 6001::8
 ipv6 enable
 ospf priority 255
 ipv6 ospf cost 100
 ipv6 ospf 100 area 10 instance 200
ipv6 ospf flood reduction
```

Related Commands

Command	Description
clear ipv6 ospf	Deletes all IPv6 settings in the OSPFv3 routing process.
debug ospfv3	Provides debugging information for troubleshooting OSPFv3 routing processes.

ipv6 ospf hello-interval

To set the time period for which hello packets must not be seen before neighbors declare that the router is down, use the **ipv6 ospf dead-interval** command in interface configuration mode. To return to the default time, use the **no** form of this command.

ipv6 ospf dead-interval *seconds*

no ipv6 ospf dead-interval *seconds*

Syntax Description

seconds	Specifies the interval in seconds. The value must be the same for all nodes in the network. Valid values range from 1 to 65535.

Defaults

The default interval is 10 seconds if you are using Ethernet and 30 seconds if you are using non-broadcast.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Use this command to specify the interval during which hello packets are not seen before neighbors notify that the router is down.

Examples

The following example sets the dead interval to 60:

```
hostname(config)# interface ethernet 0
hostname(config)# ipv6 enable
hostname(config-if)# ipv6 ospf dead-interval 60
```

Related Commands

Command	Description
clear ipv6 ospf	Deletes all IPv6 settings in the OSPFv3 routing process.
debug ospfv3	Provides debugging information for troubleshooting OSPFv3 routing processes.

ipv6 ospf mtu-ignore

To disable OSPFv3 maximum transmission unit (MTU) mismatch detection when the ASA receives database descriptor (DBD) packets, use the **ipv6 ospf mtu-ignore** command in interface configuration mode. To reset the MTU mismatch detection when the ASA receives DBD packets to the default, use the **no** form of this command.

ipv6 ospf mtu-ignore

no ipv6 ospf mtu-ignore

Syntax Description

This command has no arguments or keywords.

Defaults

OSPFv3 MTU mismatch detection is enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Use this command to disable OSPFv3 MTU mismatch detection when the ASA receives DBD packets.

Examples

The following example disables OSPFv3 MTU mismatch detection when the ASA receives DBD packets:

```
hostname(config)# interface serial 0/0
hostname(config)# ipv6 enable
hostname(config-if)# ipv6 ospf mtu-ignore
```

Related Commands

Command	Description
clear ipv6 ospf	Deletes all IPv6 settings in the OSPFv3 routing process.
debug ospfv3	Provides debugging information for troubleshooting OSPFv3 routing processes.

ipv6 ospf neighbor

To configure OSPFv3 router interconnections to nonbroadcast networks, use the **ipv6 ospf neighbor** command in interface configuration mode. To remove a configuration, use the **no** form of this command.

ipv6 ospf neighbor *ipv6-address* [**priority** *number*] [**poll-interval** *seconds*] [**cost** *number*] [**database-filter**]

no ipv6 ospf neighbor *ipv6-address* [**priority** *number*] [**poll-interval** *seconds*] [**cost** *number*] [**database-filter**]

Syntax Description

cost *number*	(Optional) Assigns a cost to the neighbor in the form of an integer from 1 to 65535. Neighbors with no specific cost configured assume the cost of the interface, based on the **ipv6 ospf cost** command.
database-filter	(Optional) Filters outgoing link-state advertisements (LSAs) to an OSPF neighbor.
ipv6-address	Link-local IPv6 address of the neighbor. This argument must be in the form documented in RFC 2373, in which the address is specified in hexadecimal format using 16-bit values between colons.
poll-interval *seconds*	(Optional) A number value that represents the poll interval time in seconds. RFC 2328 recommends that this value be much larger than the hello interval. The default is 120 seconds (two minutes). This keyword does not apply to point-to-multipoint interfaces.
priority *number*	(Optional) A number that indicates the router priority value of the nonbroadcast neighbor associated with the IPv6 prefix specified. The default is 0.

Defaults

The default depends on the network type.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Interface configuration	•	•	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Use this command to configure OSPFv3 router interconnections to nonbroadcast networks.

Examples

The following example configures an OSPFv3 neighboring router:

```
hostname(config)# interface serial 0
hostname(config)# ipv6 enable
hostname(config-if)# ipv6 ospf 1 area 0
hostname(config-if)# ipv6 ospf neighbor FE80::A8BB:CCFF:FE00:C01
```

Related Commands

Command	Description
clear ipv6 ospf	Deletes all IPv6 settings in the OSPFv3 routing process.
ipv6 ospf priority	Determines the designated router for a specified network.

ipv6 ospf network

To configure the OSPFv3 network type to a type other than the default, use the **ipv6 ospf network** command in interface configuration mode. To return to the default type, use the **no** form of this command.

ipv6 ospf network {**broadcast** | **point-to-point non-broadcast**}

no ipv6 ospf network {**broadcast** | **point-to-point non-broadcast**}

Syntax Description

broadcast	Sets the network type to broadcast.
point-to-point non-broadcast	Sets the network type to point-to-point non-broadcast.

Defaults

The default depends on the network type.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Interface configuration	•	•	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Use this command to configure the OSPFv3 network type to a type that is different from the default.

Examples

The following example sets the OSPFv3 network to a broadcast network:

```
hostname(config)# interface serial 0
hostname(config)# ipv6 enable
hostname(config-if)# ipv6 ospf 1 area 0
hostname(config-if)# ipv6 ospf network broadcast
hostname(config-if)# encapsulation frame-relay
```

Related Commands

Command	Description
clear ipv6 ospf	Deletes all IPv6 settings in the OSPFv3 routing process.
ipv6 ospf priority	Determines the designated router for a specified network.

ipv6 ospf priority

To set the router priority, which helps determine the designated router for a specified network, use the **ipv6 ospf priority** command in interface configuration mode. To return to the default value, use the **no** form of this command.

ipv6 ospf priority *number-value*

no ipv6 ospf priority *number-value*

Syntax Description

number-value	Sets the number value that specifies the priority of the router. Valid values range from 0 to 255.

Defaults

The default priority is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Use this command to set the priority of the router.

Examples

The following example sets the priority of the router to 4:

```
hostname(config)# interface ethernet 0
hostname(config-if)# ipv6 ospf priority 4
```

Related Commands

Command	Description
clear ipv6 ospf	Deletes all IPv6 settings in the OSPFv3 routing process.
ipv6 ospf retransmit-interval	Specifies the time between LSA retransmissions for adjacencies that belong to the interface.

ipv6 ospf retransmit-interval

To specify the time between LSA retransmissions for adjacencies that belong to the interface, use the **ipv6 ospf retransmit-interval** command in interface configuration mode. To return to the default value, use the **no** form of this command.

ipv6 ospf retransmit-interval *seconds*

no ipv6 ospf retransmit-interval *seconds*

Syntax Description

seconds	Specifies the time in seconds between retransmissions. The interval must be greater than the expected round-trip delay between any two routers on the attached network. Valid values range from 1 to 65535 seconds.

Defaults

The default is 5 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Use this command to specify the time between LSA retransmissions for adjacencies that belong to the interface.

Examples

The following example sets the retransmission interval to 8 seconds:

```
hostname(config)# interface ethernet 2
hostname(config)# ipv6 enable
hostname(config-if)# ipv6 ospf retransmit-interval 8
```

Related Commands

Command	Description
ipv6 ospf	Deletes all IPv6 settings in the OSPFv3 routing process.
ipv6 ospf priority	Determines the designated router for a specified network.

ipv6 ospf transmit-delay

To set the estimated time that is required to send a link-state update packet on the interface, use the **ipv6 ospf transmit-delay** command in interface configuration mode. To return to the default value, use the **no** form of this command.

ipv6 ospf transmit-delay *seconds*

no ipv6 ospf transmit-delay *seconds*

Syntax Description

seconds	Specifies the time in seconds that is required to send a link-state update. Valid values range from 1 to 65535 seconds.

Defaults

The default is 1 second.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Use this command to set the estimated time that is required to send a link-state update packet on the interface.

Examples

The following example sets the transmission delay to 3 seconds:

```
hostname(config)# interface ethernet 0
hostname(config)# ipv6 enable
hostname(config-if)# ipv6 ospf transmit-delay 3
```

Related Commands

Command	Description
clear ipv6 ospf	Deletes all IPv6 settings in the OSPFv3 routing process.
ipv6 ospf priority	Determines the designated router for a specified network.

ipv6 route

To add an IPv6 route to the IPv6 routing table, use the **ipv6 route** command in global configuration mode. To remove an IPv6 default route, use the **no** form of this command.

ipv6 route *if_name ipv6-prefix/prefix-length ipv6-address* [*administrative-distance* | **tunneled**]

no ipv6 route *if_name ipv6-prefix/prefix-length ipv6-address* [*administrative-distance* | **tunneled**]

Syntax Description

administrative-distance	(Optional) The administrative distance of the route. The default value is 1, which gives static routes precedence over any other type of routes except connected routes.
if_name	The name of the interface for which the route is being configured.
ipv6-address	The IPv6 address of the next hop that can be used to reach the specified network.
ipv6-prefix	The IPv6 network that is the destination of the static route. This argument must be in the form documented in RFC 2373, in which the address is specified in hexadecimal format using 16-bit values between colons.
prefix-length	The length of the IPv6 prefix. This value indicates how many of the high-order, contiguous bits of the address comprise the network portion of the prefix. The slash (/) must precede the prefix length.
tunneled	(Optional) Specifies the route as the default tunnel gateway for VPN traffic.

Defaults

By default, the administrative distance is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.2(1)	Support for transparent firewall mode was introduced.

Usage Guidelines

Use the **show ipv6 route** command to view the contents of the IPv6 routing table.

You can define a separate default route for tunneled traffic along with the standard default route. When you create a default route with the **tunneled** option, all traffic from a tunnel terminating on the ASA that cannot be routed using learned or static routes, is sent to this route. For traffic emerging from a tunnel, this route overrides over any other configured or learned default routes.

The following restrictions apply to default routes with the **tunneled** option:

- Do not enable unicast RPF (**ip verify reverse-path** command) on the egress interface of the tunneled route. Enabling uRPF on the egress interface of a tunneled route causes the session to fail.
- Do not enable TCP intercept on the egress interface of the tunneled route. Doing so causes the session to fail.
- Do not use the VoIP inspection engines (CTIQBE, H.323, GTP, MGCP, RTSP, SIP, or SKINNY), the DNS inspect engine, or the DCE RPC inspection engine with tunneled routes. These inspection engines ignore the tunneled route.

You cannot define more than one default route with the **tunneled** option; ECMP for tunneled traffic is not supported.

Examples

The following example routes packets for network 7fff::0/32 to a networking device on the inside interface at 3FFE:1100:0:CC00::1 with an administrative distance of 110:

```
hostname(config)# ipv6 route inside 7fff::0/32 3FFE:1100:0:CC00::1 110
```

Related Commands

Command	Description
debug ipv6 route	Displays debugging messages for IPv6 routing table updates and route cache updates.
show ipv6 route	Displays the current contents of the IPv6 routing table.

ipv6 router ospf

To create an OSPFv3 routing process and enter IPv6 router configuration mode, use the **ipv6 router ospf** command in global configuration mode.

ipv6 router ospf *process-id*

Syntax Description

process-id	Specifies the internal identification, which is locally assigned and can be a positive integer from 1 to 65535. The number used is the number that is assigned administratively when you enable the OSPFv3 for IPv6 routing process.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

The **ipv6 router ospf** command is the global configuration command for OSPFv3 routing processes running on the ASA. After you enter the **ipv6 router ospf** command, the command prompt appears as (config-rtr)#, indicating that you are in IPv6 router configuration mode.

When using the **no ipv6 router ospf** command, you do not need to specify optional arguments unless they provide necessary information. The **no ipv6 router ospf** command terminates the OSPFv3 routing process specified by its *process-id* argument. You assign the *process-id* value locally on the ASA. You must assign a unique value for each OSPFv3 routing process. You can use a maximum of two processes.

Use the **ipv6 router ospf** command in IPv6 router configuration mode to configure OSPFv3 routing processes with the following OSPFv3-specific options:

- **area**—Configures OSPFv3 area parameters. Supported parameters include the area ID as a decimal value from 0 to 4294967295 and the area ID in the IP address format of **A.B.C.D**.
- **default**—Sets a command to its default value. The **originate** parameter distributes the default route.
- **default-information**—Controls distribution of default information.
- **distance**—Defines the OSPFv3 route administrative distance based on the route type. Supported parameters include the administrative distance with values from 1 to 254 and **ospf** for the OSPF distance.

- **exit—**Exits IPv6 router configuration mode.
- **ignore**—Suppresses the sending of syslog messages with the **lsa** parameter when the router receives a link-state advertisement (LSA) for Type 6 Multicast OSPF (MOSPF) packets.
- **log-adjacency-changes**—Configures the router to send a syslog message when an OSPFv3 neighbor goes up or down. With the **detail** parameter, all state changes are logged.
- **passive-interface**—Suppresses routing updates on an interface with the following parameters:
  - **GigabitEthernet**—Specifies the GigabitEthernet IEEE 802.3z interface.
  - **Management**—Specifies the management interface.
  - **Port-channel**—Specifies the Ethernet channel of an interface.
  - **Redundant**—Specifies the redundant interface.
  - **default**—Suppresses routing updates on all interfaces.
- **redistribute**—Configures the redistribution of routes from one routing domain into another according to the following parameters:
  - **connected**—Specifies connected routes.
  - **ospf**—Specifies OSPF routes.
  - **static**—Specifies static routes.
- **router-id**—Creates a fixed router ID for a specified process with the following parameters:
  - **A.B.C.D**—Specifies the OSPF router ID in IP address format.
  - **cluster-pool**—Configures an IP address pool when Layer 3 clustering is configured.
- **summary-prefix**—Configures IPv6 address summaries with valid values from 0 to 128. The **X:X:X:X::X/** parameter specifies the IPv6 prefix.
- **timers—**Adjusts routing timers with the following parameters:
  - **lsa**—Specifies OSPF LSA timers.
  - **pacing**—Specifies OSPF pacing timers.
  - **throttle**—Specifies OSPF throttle timers.

Examples

The following example enables an OSPFv3 routing process and enters IPv6 router configuration mode:

```
hostname(config)# ipv6 router ospf 10
hostname(config-rtr)#
```

Related Commands

Command	Description
clear ipv6 ospf	Removes all IPv6 settings in the OSPFv3 routing process.
debug ospfv3	Provides debugging information for troubleshooting OSPFv3 routing processes.

ipv6-address-pool (tunnel-group general attributes mode)

To specify a list of IPv6 address pools for allocating addresses to remote clients, use the **ipv6-address-pool** command in tunnel-group general-attributes configuration mode. To eliminate IPv6 address pools, use the **no** form of this command.

ipv6-address-pool [(*interface_name*)] *ipv6_address_pool1* [*...ipv6_address_pool6*]

no ipv6-address-pool [(*interface_name*)] *ipv6_address_pool1* [*...ipv6_address_pool6*]

Syntax Description

interface_name	(Optional) Specifies the interface to be used for the address pool.
ipv6_address_pool	Specifies the name of the address pool configured with the **ipv6 local pool** command. You can specify up to six local address pools.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tunnel-group general attributes configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

You can enter multiples of each of these commands, one per interface. If an interface is not specified, then the command specifies the default for all interfaces that are not explicitly referenced.

The IPv6 address-pool settings in the group-policy **ipv6-address-pools** command override the IPv6 address pool settings in the tunnel group **ipv6-address-pool** command.

The order in which you specify the pools is significant. The ASA allocates addresses from these pools in the order in which the pools appear in this command.

Examples

The following example entered in tunnel-group general-attributes configuration mode, specifies a list of IPv6 address pools for allocating addresses to remote clients for an IPsec remote access tunnel group test:

```
hostname(config)# tunnel-group test type remote-access
hostname(config)# tunnel-group test general-attributes
hostname(config-tunnel-general)# ipv6-address-pool (inside) ipv6addrpool1 ipv6addrpool2
ipv6addrpool3
```

```
hostname(config-tunnel-general)#
```

Related Commands

Command	Description
ipv6-address-pools	Configures the IPv6 address pools settings for the group policy, which override those settings for the tunnel group.
ipv6 local pool	Configures IP address pools to be used for VPN remote access tunnels.
clear configure tunnel-group	Clears all configured tunnel groups.
show running-config tunnel-group	Shows the tunnel group configuration for all tunnel groups or for a particular tunnel group.
tunnel-group	Configures a tunnel group.

ipv6-address-pools

To specify a list of up to six IPv6 address pools from which to allocate addresses to remote clients, use the **ipv6-address-pools** command in group-policy attributes configuration mode. To remove the attribute from the group policy and enable inheritance from other sources of group policy, use the **no** form of this command.

ipv6-address-pools value *ipv6_address_pool1* [*...ipv6_address_pool6*]

no ipv6-address-pools value *ipv6_address_pool1* [*...ipv6_address_pool6*]

ipv6-address-pools none

no ipv6-address-pools none

Syntax Description

ipv6_address_pool	Specifies the names of the up to six IPv6 address pools configured with the **ipv6 local pool** command. Use spaces to separate the IPv6 address pool names.
none	Specifies that no IPv6 address pools are configured and disables inheritance from other sources of group policy.
value	Specifies a list of up to six IPv6 address pools from which to assign addresses.

Defaults

By default, the IPv6 address pools attribute is not configured.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy attributes configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

To configure IPv6 address pools, use the **ipv6 local pool** command.

The order in which you specify the pools in the **ipv6-address-pools** command is significant. The ASA allocates addresses from these pools in the order in which the pools appear in this command.

The **ipv6-address-pools none** command disables this attribute from being inherited from other sources of policy, such as the DefaultGrpPolicy. The **no ipv6-address-pools none** command removes the **ipv6-address-pools none** command from the configuration, restoring the default value, which is to allow inheritance.

Examples

The following example, entered in group-policy attributes configuration mode, configures an IPv6 address pool named firstipv6pool for use in allocating addresses to remote clients, then associates that pool with GroupPolicy1:

```
hostname(config)# ipv6 local pool firstipv6pool 2001:DB8::1000/32 100
hostname(config)# group-policy GroupPolicy1 attributes
hostname(config-group-policy)# ipv6-address-pools value firstipv6pool
hostname(config-group-policy)#
```

Related Commands

Command	Description
ipv6 local pool	Configures an IPv6 address pool to be used for VPN group policies.
clear configure group-policy	Clears all configured group policies.
show running-config group-policy	Shows the configuration for all group policies or for a particular group policy.

ipv6-split-tunnel-policy

To set a IPv6 split tunneling policy, use the **ipv6-split-tunnel-policy** command in group-policy configuration mode. To remove the ipv6-split-tunnel-policy attribute from the running configuration, use the **no** form of this command. This enables inheritance of a value for IPv6 split tunneling from another group policy.

IPv6 split tunneling lets a remote-access VPN client conditionally direct packets over an IPsec or SSL IPv6 tunnel in encrypted form, or to a network interface in cleartext form. With IPv6 split-tunneling enabled, packets not bound for destinations on the other side of the IPsec or SSL VPN tunnel endpoint do not have to be encrypted, sent across the tunnel, decrypted, and then routed to a final destination.

This command applies IPv6 split tunneling policy to a specific network.

ipv6-split-tunnel-policy {tunnelall | tunnelspecified | excludespecified}

no ipv6-split-tunnel-policy

Syntax Description

excludespecified	Defines a list of networks to which traffic goes in the clear. This feature is useful for remote users who want to access devices on their local network, such as printers, while they are connected to the corporate network through a tunnel.
ipv6-split-tunnel-policy	Indicates that you are setting rules for tunneling traffic.
tunnelall	Specifies that no traffic goes in the clear or to any other destination than the ASA. Remote users reach internet networks through the corporate network and do not have access to local networks.
tunnelspecified	Tunnels all traffic from or to the specified networks. This option enables split tunneling. It lets you create a network list of addresses to tunnel. Data to all other addresses travels in the clear, and is routed by the remote user's internet service provider.

Defaults

IPv6 split tunneling is disabled by default, which is tunnelall.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

IPv6 split tunneling is primarily a traffic management feature, not a security feature. In fact, for optimum security, we recommend that you not enable IPv6 split tunneling.

Examples

The following example shows how to set a split tunneling policy of tunneling only specified networks for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# ipv6-split-tunnel-policy tunnelspecified
```

Related Commands

Command	Description
split-tunnel-network-list none	Indicates that no access list exists for split tunneling. All traffic travels across the tunnel.
split-tunnel-network-list value	Identifies the access list the ASA uses to distinguish networks that require tunneling and those that do not.

ipv6-vpn-address-assign

To specify a method for assigning IPv6 addresses to remote access clients, use the **ipv6-vpn-addr-assign** command in global configuration mode. To remove the attribute from the configuration, use the **no** version of this command. To remove all configured VPN address assignment methods from the ASA, user the **no** version of this command. without arguments.

ipv6-vpn-addr-assign {**aaa | local** }

no ipv6-vpn-addr-assign {**aaa | local** }

Syntax Description

aaa	The ASA retrieves addresses from an external or internal (LOCAL) AAA (authentication, authorization, and accounting) server on a per-user basis. If you are using an authentication server that has IP addresses configured, we recommend using this method.
local	The ASA distributes IPv6 addresses from internally configured address pools.

Defaults

Both the AAA and local vpn address assignment options are enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

The ASA can use either the AAA or local methods for assigning IPv6 addresses to remote access clients. If you configure more than one address assignment method, the ASA searches each of the options until it finds an IPv6 address.

Examples

The following example shows how to configure AAA as the address assignment method.

```
Example:
hostname(config)# ipv6-vpn-addr-assign aaa
```

The following example shows how to configure the use of a local address pool for the address assignment method.

Example:

```
hostname(config)# no ipv6-vpn-addr-assign local
```

Related Commands

Command	Description
ipv6 local pool	Configures an IPv6 address pool to be used for VPN group policies.
show running-config group-policy	Shows the configuration for all group policies or for a particular group policy.
vpn-addr-assign	Specifies a method for assigning IPv4 addresses to remote access clients.

ipv6-vpn-filter

To specify the name of the IPv6 ACL to use for VPN connections, use the **ipv6-vpn-filter** command in group-policy configuration or username configuration mode. To remove the ACL, including a null value created by issuing the **ipv6-vpn-filter none** command, use the **no** form of this command.

ipv6-vpn-filter {**value** *IPV6-ACL-NAME* | **none**}

no ipv6-vpn-filter

Syntax Description

none	Indicates that there is no access list. Sets a null value, thereby disallowing an access list. Prevents inheriting an access list from another group policy.
value *IPV6-ACL-NAME*	Provides the name of the previously configured access list.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Group-policy configuration	•	—	•	—	—
Username configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	The **ipv6-vpn-filter** command was deprecated. The **vpn-filter** command should be used to configure unified filters with either IPv4 and IPv6 entries. This IPv6 filter will only be used if there are no IPv6 entries in the access list specified by the **vpn-filter** command.
9.1(4)	The **ipv6-vpn-filter** command has been disabled, only the "no" form of the command will be allowed. The **vpn-filter** command should be used to configure unified filters for IPv4 and IPv6 entries. If this command is mistakenly used to specify IPv6 ACLs the connection will be terminated.

Usage Guidelines

Clientless SSL VPN does not use the ACL defined in the **ipv6-vpn-filter** command.

The **no** option allows inheritance of a value from another group policy. To prevent inheriting values, use the **ipv6-vpn-filter none** command.

You configure ACLs to permit or deny various types of traffic for this user or group policy. You then use the **ipv6-vpn-filter** command to apply those ACLs.

Examples

The following example shows how to set a filter that invokes an access list named ipv6_acl_vpn for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# ipv6-vpn-filter value ipv6_acl_vpn
```

Related Commands

Command	Description
access-list	Creates an access list, or uses a downloadable access list.
vpn-filter	Specifies the names of an IPv4 or IPv6 ACL to use for VPN connections.

CHAPTER 28

isakmp am-disable through issuer-name Commands

isakmp am-disable

To disable inbound aggressive mode connections, use the **isakmp am-disable** command in global configuration mode. To enable inbound aggressive mode connections, use the **no** form of this command.

isakmp am-disable

no isakmp am-disable

Syntax Description

This command has no arguments or keywords.

Defaults

The default value is enabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	This command was deprecated. The **crypto isakmp am-disable** command replaced it.

Examples

The following example, entered in global configuration mode, disables inbound aggressive mode connections:

```
hostname(config)# isakmp am-disable
```

Related Commands

Command	Description
clear configure isakmp	Clears all the ISAKMP configuration.
clear configure isakmp policy	Clears all ISAKMP policy configuration.
clear isakmp sa	Clears the IKE runtime SA database.
show running-config isakmp	Displays all the active configuration.

isakmp disconnect-notify

To enable disconnect notification to peers, use the **isakmp disconnect-notify** command in global configuration mode. To disable disconnect notification, use the **no** form of this command.

isakmp disconnect-notify

no isakmp disconnect-notify

Syntax Description

This command has no arguments or keywords.

Defaults

The default value is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	This command was deprecated. The **crypto isakmp disconnect-notify** command replaced it.

Examples

The following example, entered in global configuration mode, enables disconnect notification to peers:

```
hostname(config)# isakmp disconnect-notify
```

Related Commands

Command	Description
clear configure isakmp	Clears all the ISAKMP configuration.
clear configure isakmp policy	Clears all ISAKMP policy configuration.
clear isakmp sa	Clears the IKE runtime SA database.
show running-config isakmp	Displays all the active configuration.

isakmp enable

To enable ISAKMP negotiation on the interface on which the IPsec peer communicates with the ASA, use the **isakmp enable** command in global configuration mode. To disable ISAKMP on the interface, use the **no** form of this command.

isakmp enable *interface-name*

no isakmp enable *interface-name*

Syntax Description

interface-name	Specifies the name of the interface on which to enable or disable ISAKMP negotiation.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	This command was deprecated. The **crypto isakmp enable** command replaced it.

Examples

The following example, entered in global configuration mode, shows how to disable ISAKMP on the inside interface:

```
hostname(config)# no isakmp enable inside
```

Related Commands

Command	Description
clear configure isakmp	Clears all the ISAKMP configuration.
clear configure isakmp policy	Clears all ISAKMP policy configuration.
clear isakmp sa	Clears the IKE runtime SA database.
show running-config isakmp	Displays all the active configuration.

isakmp identity

To set the Phase 2 ID to be sent to the peer, use the **isakmp identity** command in global configuration mode. To return to the default setting, use the **no** form of this command.

isakmp identity {**address** | **hostname** | **key-id** *key-id-string* | **auto**}

no isakmp identity {**address** | **hostname** | **key-id** *key-id-string* | **auto**}

Syntax Description

address	Uses the IP address of the host exchanging ISAKMP identity information.
auto	Determines ISKMP negotiation by connection type; IP address for the preshared key or certificate DN for certificate authentication.
hostname	Uses the fully qualified domain name of the host exchanging ISAKMP identity information (default). This name comprises the hostname and the domain name.
key-id *key_id_string*	Specifies the string used by the remote peer to look up the preshared key.

Defaults

The default ISAKMP identity is the **isakmp identity hostname** command.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	This command was deprecated. The **crypto isakmp identity** command replaced it.

Examples

The following example, entered in global configuration mode, enables ISAKMP negotiation on the interface for communicating with the IPsec peer, depending on connection type:

```
hostname(config)# isakmp identity auto
```

Related Commands

Command	Description
clear configure isakmp	Clears all the ISAKMP configuration.
clear configure isakmp policy	Clears all ISAKMP policy configuration.

Command	Description
clear isakmp sa	Clears the IKE runtime SA database.
show running-config isakmp	Displays all the active configuration.

isakmp ipsec-over-tcp

To enable IPsec over TCP, use the **isakmp ipsec-over-tcp** command in global configuration mode. To disable IPsec over TCP, use the **no** form of this command.

isakmp ipsec-over-tcp [**port** *port1...port10*]

no isakmp ipsec-over-tcp [**port** *port1...port10*]

Syntax Description

port *port1...port10*	(Optional) Specifies the ports on which the device accepts IPsec over TCP connections. You can list up to 10 ports. Port numbers can be in the range of 1-65535. The default port number is 10000.

Defaults

The default value is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	This command was deprecated. The **crypto isakmp ipsec-over-tcp** command replaces it.

Examples

This example, entered in global configuration mode, enables IPsec over TCP on port 45:

```
hostname(config)# isakmp ipsec-over-tcp port 45
```

Related Commands

Command	Description
clear configure isakmp	Clears all the ISAKMP configuration.
clear configure isakmp policy	Clears all ISAKMP policy configuration.
clear isakmp sa	Clears the IKE runtime SA database.
show running-config isakmp	Displays all the active configuration.

isakmp keepalive

To configure IKE keepalives, use the **isakmp keepalive** command in tunnel-group ipsec-attributes configuration mode. To return the keepalive parameters to enabled with default threshold and retry values, use the **no** form of this command.

isakmp keepalive [**threshold** *seconds* | **infinite**] [**retry** *seconds*] [**disable**]

no isakmp keepalive disable [**threshold** *seconds* | **infinite**] [**retry** *seconds*] [**disable**]

Syntax Description

disable	Disables IKE keepalive processing, which is enabled by default.
infinite	The ASA never initiates keepalive monitoring.
retry *seconds*	Specifies the interval in seconds between retries after a keepalive response has not been received. The range is 2-10 seconds. The default is 2 seconds.
threshold *seconds*	Specifies the number of seconds that the peer can idle before beginning keepalive monitoring. The range is 10-3600 seconds. The default is 10 seconds for a LAN-to-LAN group, and 300 second for a remote access group.

Defaults

The default for a remote access group is a threshold of 300 seconds and a retry of 2 seconds.

For a LAN-to-LAN group, the default is a threshold of 10 seconds and a retry of 2 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Tunnel-group ipsec-attributes configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

In every tunnel group, IKE keepalives are enabled by default with default threshold and retry values. You can apply this attribute only to IPsec remote access and IPsec LAN-to-LAN tunnel group types.

Examples

The following example entered in tunnel-group ipsec-attributes configuration mode, configures IKE DPD, establishes a threshold of 15, and specifies a retry interval of 10 for the IPsec LAN-to-LAN tunnel group with the IP address 209.165.200.225:

```
hostname(config)# tunnel-group 209.165.200.225 type IPSec_L2L
```

```
hostname(config)# tunnel-group 209.165.200.225 ipsec-attributes
hostname(config-tunnel-ipsec)# isakmp keepalive threshold 15 retry 10
hostname(config-tunnel-ipsec)#
```

Related Commands

Command	Description
clear-configure tunnel-group	Clears all configured tunnel groups.
show running-config tunnel-group	Shows the tunnel group configuration for all tunnel groups or for a particular tunnel group.
tunnel-group ipsec-attributes	Configures the tunnel group IPsec attributes for this group.

isakmp nat-traversal

To enable NAT traversal globally, check that ISAKMP is enabled (you can enable it with the **isakmp enable** command) in global configuration mode and then use the **isakmp nat-traversal** command. If you have enabled NAT traversal, you can disable it with the **no** form of this command.

isakmp nat-traversal *natkeepalive*

no isakmp nat-traversal *natkeepalive*

Syntax Description

natkeepalive	Sets the NAT keepalive interval, from 10 to 3600 seconds. The default is 20 seconds.

Defaults

By default, NAT traversal (**isakmp nat-traversal** command) is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	This command was deprecated. The **crypto isakmp nat-traversal** command replaced it.

Usage Guidelines

Network Address Translation (NAT), including Port Address Translation (PAT), is used in many networks where IPsec is also used, but there are a number of incompatibilities that prevent IPsec packets from successfully traversing NAT devices. NAT traversal enables ESP packets to pass through one or more NAT devices.

The ASA supports NAT traversal as described by Version 2 and Version 3 of the IETF "UDP Encapsulation of IPsec Packets" draft, available at http://www.ietf.org/html.charters/ipsec-charter.html, and NAT traversal is supported for both dynamic and static crypto maps.

This command enables NAT-T globally on the ASA. To disable in a crypto-map entry, use the **crypto map set nat-t-disable** command.

Examples

The following example, entered in global configuration mode, enables ISAKMP and then enables NAT traversal with an interval of 30 seconds:

```
hostname(config)# isakmp enable
hostname(config)# isakmp nat-traversal 30
```

Related Commands

Command	Description
clear configure isakmp	Clears all the ISAKMP configuration.
clear configure isakmp policy	Clears all ISAKMP policy configuration.
clear isakmp sa	Clears the IKE runtime SA database.
show running-config isakmp	Displays all the active configuration.

isakmp policy authentication

To specify an authentication method within an IKE policy, use the **isakmp policy authentication** command in global configuration mode. To remove the ISAKMP authentication method, use the **clear configure** command.

isakmp policy *priority* **authentication** {**crack** | **pre-share** | **rsa-sig**}

Syntax Description

crack	Specifies IKE Challenge/Response for Authenticated Cryptographic Keys (CRACK) as the authentication method.
pre-share	Specifies preshared keys as the authentication method.
priority	Uniquely identifies the IKE policy and assigns a priority to the policy. Use an integer from 1 to 65,534, with 1 being the highest priority and 65,534 the lowest.
rsa-sig	Specifies RSA signatures as the authentication method. RSA signatures provide non-repudiation for the IKE negotiation. This means you can prove to a third party whether or not you had an IKE negotiation with the peer.

Defaults

The default ISAKMP policy authentication is the **pre-share** option.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

IKE policies define a set of parameters for IKE negotiation. If you specify RSA signatures, you must configure the ASA and its peer to obtain certificates from a certification authority (CA). If you specify preshared keys, you must separately configure these preshared keys within the ASA and its peer.

Examples

The following example, entered in global configuration mode, sets the authentication method of RSA signatures to be used within the IKE policy with the priority number of 40:

```
hostname(config)# isakmp policy 40 authentication rsa-sig
```

Related Commands

Command	Description
clear configure isakmp	Clears all the ISAKMP configuration.
clear configure isakmp policy	Clears all ISAKMP policy configuration.
clear isakmp sa	Clears the IKE runtime SA database.
show running-config isakmp	Displays all the active configuration.

isakmp policy encryption

To specify the encryption algorithm to use within an IKE policy, use the **isakmp policy encryption** command in global configuration mode. To reset the encryption algorithm to the default value, use the **no** form of this command.

isakmp policy *priority* **encryption** {**aes | aes-192| aes-256 | des | 3des**}

no isakmp policy *priority* **encryption** {**aes | aes-192| aes-256 | des | 3des**}

Syntax Description

3des	Specifies that the triple DES encryption algorithm be used in the IKE policy.
aes	Specifies that the encryption algorithm to use in the IKE policy is AES with a 128-bit key.
aes-192	Specifies that the encryption algorithm to use in the IKE policy is AES with a 192-bit key.
aes-256	Specifies that the encryption algorithm to use in the IKE policy is AES with a 256-bit key.
des	Specifies that the encryption algorithm to use in the IKE policy is 56-bit DES-CBC.
priority	Uniquely identifies the IKE policy and assigns a priority to the policy. Use an integer from 1 to 65,534, with 1 being the highest priority and 65,534 the lowest.

Defaults

The default ISAKMP policy encryption is **3des**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	This command was deprecated. The **crypto isakmp policy encryption** command replaced it.

Examples

The following example, entered in global configuration mode, sets 128-bit key AES encryption as the algorithm to be used within the IKE policy with the priority number of 25:

```
hostname(config)# isakmp policy 25 encryption aes
```

The following example, entered in global configuration mode, sets the 3DES algorithm to be used within the IKE policy with the priority number of 40:

```
hostname(config)# isakmp policy 40 encryption 3des
hostname(config)#
```

Related Commands

Command	Description
clear configure isakmp	Clears all the ISAKMP configuration.
clear configure isakmp policy	Clears all ISAKMP policy configuration.
clear isakmp sa	Clears the IKE runtime SA database.
show running-config isakmp	Displays all the active configuration.

isakmp policy group

To specify the Diffie-Hellman group for an IKE policy, use the **isakmp policy group** command in global configuration mode.To reset the Diffie-Hellman group identifier to the default value, use the **no** form of this command.

isakmp policy *priority* **group** {**1** | **2** | **5**}

no isakmp policy *priority* **group**

Syntax Description

group 1	Specifies that the 768-bit Diffie-Hellman group be used in the IKE policy. This is the default value.
group 2	Specifies that the 1024-bit Diffie-Hellman group 2 be used in the IKE policy.
group 5	Specifies that the 1536-bit Diffie-Hellman group 5 be used in the IKE policy.
priority	Uniquely identifies the Internet Key Exchange (IKE) policy and assigns a priority to the policy. Use an integer from 1 to 65,534, with 1 being the highest priority and 65,534 the lowest.

Defaults

The default is group 2.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced. Group 7 was added.
7.2(1)	This command was deprecated. The **crypto isakmp policy group** command replaced it.
8.0(4)	The **group 7** command option was deprecated. Attempts to configure group 7 will generate an error message and use group 5 instead.

Usage Guidelines

IKE policies define a set of parameters to use during IKE negotiation.

There are three group options: 768-bit (DH Group 1), 1024-bit (DH Group 2), and 1536-bit (DH Group 5). The 1024-bit and 1536-bit Diffie-Hellman Groups provide stronger security, but require more CPU time to execute.

Note The Cisco VPN Client Version 3.x or higher requires ISAKMP policy to have DH group 2 configured. (If you have DH group 1 configured, the Cisco VPN Client cannot connect.)

AES support is available on ASAs licensed for VPN-3DES only. Due to the large key sizes provided by AES, ISAKMP negotiation should use Diffie-Hellman (DH) group 5 instead of group 1 or group 2. This is done with the **isakmp policy priority group 5** command.

Examples

The following example, entered in global configuration mode, sets group 2, the 1024-bit Diffie Hellman, to use for the IKE policy with the priority number of 40:

```
hostname(config)# isakmp policy 40 group 2
```

Related Commands

Command	Description
clear configure isakmp	Clears all the ISAKMP configuration.
clear configure isakmp policy	Clears all ISAKMP policy configuration.
clear isakmp sa	Clears the IKE runtime SA database.
show running-config isakmp	Displays all the active configuration.

isakmp policy hash

To specify the hash algorithm for an IKE policy, use the **isakmp policy hash** command in global configuration mode.To reset the hash algorithm to the default value of SHA-1, use the **no** form of this command.

isakmp policy *priority* **hash** {**md5** | **sha**}

no isakmp policy *priority* **hash**

Syntax Description

md5	Specifies that MD5 (HMAC variant) be used as the hash algorithm in the IKE policy.
priority	Uniquely identifies the IKE policy and assigns a priority to the policy. Use an integer from 1 to 65,534, with 1 being the highest priority and 65,534 the lowest.
sha	Specifies that SHA-1 (HMAC variant) be used as the hash algorithm in the IKE policy.

Defaults

The default hash algorithm is SHA-1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	This command was deprecated. The **crypto isakmp policy hash** command replaces it.

Usage Guidelines

IKE policies define a set of parameters to be used during IKE negotiation.

There are two hash algorithm options: SHA-1 and MD5. MD5 has a smaller digest and is considered to be slightly faster than SHA-1.

Examples

The following example, entered in global configuration mode, specifies that the MD5 hash algorithm be used within the IKE policy, with the priority number of 40:

```
hostname(config)# isakmp policy 40 hash md5
```

Related Commands

Command	Description
clear configure isakmp	Clears all the ISAKMP configuration.
clear configure isakmp policy	Clears all ISAKMP policy configuration.
clear isakmp sa	Clears the IKE runtime SA database.
show running-config isakmp	Displays all the active configuration.

isakmp policy lifetime

To specify the lifetime of an IKE security association before it expires, use the **isakmp policy lifetime** command in global configuration mode. To reset the security association lifetime to the default value of 86,400 seconds (one day), use the **no** form of this command .

isakmp policy *priority* **lifetime** *seconds*

no isakmp policy *priority* **lifetime**

Syntax Description

priority	Uniquely identifies the IKE policy and assigns a priority to the policy. Use an integer from 1 to 65,534, with 1 being the highest priority and 65,534 the lowest.
seconds	Specifies how many seconds each security association should exist before expiring. To propose a finite lifetime, use an integer from 120 to 2147483647 seconds. Use 0 seconds for an infinite lifetime.

Defaults

The default value is 86,400 seconds (one day).

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	This command was deprecated. The **crypto isakmp policy lifetime** command replaced it.

Usage Guidelines

When IKE begins negotiations, it seeks to agree upon the security parameters for its own session. Then the security association at each peer refers to the agreed-upon parameters. The peers retain the security association until the lifetime expires. Before a security association expires, subsequent IKE negotiations can use it, which can save time when setting up new IPsec security associations. The peers negotiate new security associations before current security associations expire.

With longer lifetimes, the ASA sets up future IPsec security associations more quickly. Encryption strength is great enough to ensure security without using very fast rekey times, on the order of every few minutes. We recommend that you accept the default, but you can specify an infinite lifetime if the peer does not propose a lifetime.

Note If the IKE security association is set to an infinite lifetime, but the peer proposes a finite lifetime, then the negotiated finite lifetime from the peer is used.

Examples

The following example, entered in global configuration mode, sets the lifetime of the IKE security association to 50,4000 seconds (14 hours) within the IKE policy with the priority number of 40:

```
hostname(config)# isakmp policy 40 lifetime 50400
```

The following example, entered in global configuration mode, sets the IKE security association to an infinite lifetime.

```
hostname(config)# isakmp policy 40 lifetime 0
```

Related Commands

clear configure isakmp	Clears all the ISAKMP configuration.
clear configure isakmp policy	Clears all ISAKMP policy configuration.
clear isakmp sa	Clears the IKE runtime SA database.
show running-config isakmp	Displays all the active configuration.

isakmp reload-wait

To enable waiting for all active sessions to voluntarily terminate before rebooting the ASA, use the **isakmp reload-wait** command in global configuration mode. To disable waiting for active sessions to terminate and to proceed with a reboot of the ASA, use the **no** form of this command.

isakmp reload-wait

no isakmp reload-wait

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	This command was deprecated. The **crypto isakmp reload-wait** command replaced it.

Examples

The following example, entered in global configuration mode, tells the ASA to wait until all active sessions have terminated before rebooting:

```
hostname(config)# isakmp reload-wait
```

Related Commands

Command	Description
clear configure isakmp	Clears all the ISAKMP configuration.
clear configure isakmp policy	Clears all ISAKMP policy configuration.
clear isakmp sa	Clears the IKE runtime SA database.
show running-config isakmp	Displays all the active configuration.

issuer

To specify the security device that is sending assertions to a SAML-type SSO server, use the **issuer** command in webvpn-sso-saml configuration mode for that specific SAML type. To remove the issuer name, use the **no** form of this command.

issuer *identifier*

no issuer [*identifier*]

Syntax Description

identifier	Specifies a security device name, usually the hostname of the device. An identifier must be less than 65 alphanumeric characters.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn-sso-saml configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

SSO support, available only for WebVPN, lets users access different secure services on different servers without entering a username and password more than once. The ASA currently supports the SAML POST-type SSO server and the SiteMinder-type of SSO server.

This command applies only to SAML-type SSO Servers.

Examples

The following example specifies the issuer name for a security device named asa1.example.com:

```
hostname(config-webvpn)# sso server myhostname type saml-v1.1-post
hostname(config-webvpn-sso-saml# issuer asa1.example.com
hostname(config-webvpn-sso-saml#
```

Related Commands

Command	Description
assertion-consumer-url	Specifies the URL that the security device uses to contact the SAML-type SSO server assertion consumer service.
request-timeout	Specifies the number of seconds before a failed SSO authentication attempt times out.
show webvpn sso-server	Displays the operating statistics for all SSO servers configured on the security device.
sso-server	Creates a single sign-on server.
trustpoint	Specifies a trustpoint name that contains the certificate to use to sign the SAML-type browser assertion.

issuer-name

To specify the issuer name DN of all issued certificates, use the **issuer-name** command in local certificate authority (CA) server configuration mode. To remove the subject DN from the certificate authority certificate, use the **no** form of this command.

issuer-name *DN-string*

no issuer-name *DN-string*

Syntax Description

DN-string	Specifies the distinguished name of the certificate, which is also the subject name DN of the self-signed CA certificate. Use commas to separate attribute-value pairs. Insert quotation marks around any value that contains a comma. An issuer name must be less than 500 alphanumeric characters.

Defaults

The default issuer name is cn=*hostame.domain-name*, for example cn=asa.example.com.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ca server configuration	•	—	•	—	—

Command History

Release	Modification
7.3(1)	This command was introduced.
8.0(2)	Support for quotation marks was added to retain commas in *DN-string* values.

Usage Guidelines

This command specifies the issuer name that appears on any certificate created by the local CA server. Use this optional command if you want the issuer name to be different from the default CA name.

Note This issuer name configuration cannot be changed after you have enabled the CA server and generated the certificate by issuing the **no shutdown** command.

Examples

The following example configures certificate authentication:

```
hostname(config)# crypto ca server
hostname(config-ca-server)# issuer-name cn=asa-ca.example.com,ou=Eng,o=Example,c="cisco
systems, inc."
hostname(config-ca-server)#
```

Related Commands

Command	Description
crypto ca server	Provides access to ca server configuration mode commands, which allow you to configure and manage the local CA.
keysize	Specifies the size of the public and private keys generated at certificate enrollment.
lifetime	Specifies the lifetime of the CA certificate and issued certificates.
show crypto ca server	Displays the characteristics of the local CA.
show crypto ca server cert-db	Displays local CA server certificates.

CHAPTER 29

java-trustpoint through kill Commands

java-trustpoint

To configure the WebVPN Java object signing facility to use a PKCS12 certificate and keying material from a specified trustpoint location, use the **java-trustpoint** command in webvpn configuration mode.To remove a trustpoint for Java object signing, use the **no** form of this command.

java-trustpoint *trustpoint*

no java-trustpoint

Syntax Description

trustpoint	Specifies the trustpoint location configured by the **crypto ca import** command.

Defaults

By default, a trustpoint for Java object signing is set to none.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.1(2)	This command was introduced.

Usage Guidelines

A trustpoint is a representation of a certificate authority (CA) or identity key pair. For the **java-trustpoint** command, the given trustpoint must contain the X.509 certificate of the application signing entity, the RSA private key corresponding to that certificate, and a certificate authority chain extending up to a root CA. This is typically achieved by using the **crypto ca import** command to import a PKCS12 formatted bundle. You can obtain a PKCS12 bundle from a trusted CA authority or you can manually create one from an existing X.509 certificate and an RSA private key using open source tools such as openssl.

Note An uploaded certificate cannot be used to sign Java objects that are embedded with packages (for example, the CSD package).

Examples

The following example first configures a new trustpoint, then configures it for WebVPN Java object signing:

```
hostname(config)# crypto ca import mytrustpoint pkcs12 mypassphrase
Enter the base 64 encoded PKCS12.
End with the word "quit" on a line by itself.
[ PKCS12 data omitted ]
```

```
quit
INFO: Import PKCS12 operation completed successfully.
hostname(config)#
```

The following example configures the new trustpoint for signing WebVPN Java objects:

```
hostname(config)# webvpn
hostname(config)# java-trustpoint mytrustpoint
hostname(config)#
```

Related Commands

Command	Description
crypto ca import	Imports the certificate and key pair for a trustpoint using PKCS12 data.

join-failover-group

To assign a context to a failover group, use the **join-failover-group** command in context configuration mode. To restore the default setting, use the **no** form of this command.

join-failover-group *group_num*

no join-failover-group *group_num*

Syntax Description

group_num	Specifies the failover group number.

Defaults

Failover group 1.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Context configuration	•	•	—	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The admin context is always assigned to failover group 1. You can use the **show context detail** command to display the failover group and context association.

Before you can assign a context to a failover group, you must create the failover group with the **failover group** command in the system context. Enter this command on the unit where the context is in the active state. By default, unassigned contexts are members of failover group 1, so if the context had not been previously assigned to a failover group, you should enter this command on the unit that has failover group 1 in the active state.

You must remove all contexts from a failover group, using the **no join-failover-group** command, before you can remove a failover group from the system.

Examples

The following example assigns a context named ctx1 to failover group 2:

```
hostname(config)# context ctx1
hostname(config-context)# join-failover-group 2
hostname(config-context)# exit
```

Related Commands

Command	Description
context	Enters context configuration mode for the specified context.
failover group	Defines a failover group for Active/Active failover.
show context detail	Displays context detail information, including name, class, interfaces, failover group association, and configuration file URL.

jumbo-frame reservation

To enable jumbo frames for supported models, use the **jumbo-frame reservation** command in global configuration mode. To disable jumbo frames, use the **no** form of this command.

Note Changes in this setting require you to reboot the ASA.

jumbo-frame reservation

no jumbo-frame reservation

Syntax Description

This command has no arguments or keywords.

Defaults

Jumbo frame reservation is disabled by default.

Jumbo frames are supported by default on the ASASM; you do not need to use this command.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
8.1(1)	This command was introduced for the ASA 5580.
8.2(5)/8.4(1)	We added support for the ASA 5585-X.
8.6(1)	We added support for the ASA 5512-X through ASA 5555-X.

Usage Guidelines

A jumbo frame is an Ethernet packet larger than the standard maximum of 1518 bytes (including Layer 2 header and FCS), up to 9216 bytes. Jumbo frame support requires extra memory, which might limit the maximum use of other features, such as access lists.

Jumbo frames are not supported on the Management *n*/*n* interface.

Be sure to set the MTU for each interface that needs to transmit jumbo frames to a higher value than the default 1500; for example, set the value to 9000 using the **mtu** command. For the ASASM, you do not need to set the **jumbo-frame** reservation command; it supports jumbo frames by default. Just set the MTU to the desired value.

Also, be sure to configure the MSS (maximum segment size) value for TCP when using jumbo frames. The MSS should be 120 bytes less than the MTU. For example, if you configure the MTU to be 9000, then the MSS should be configured to 8880. You can configure the MSS with the **sysopt connection tcpmss** command.

Both the primary and the secondary units require a reboot so that the failover pair supports jumbo frames. To avoid downtime, do the following:

- Issue the command on the active unit.
- Save the running configuration on the active unit.
- Reboot the primary and secondary units, one at a time.

Examples

The following example enables jumbo frame reservation, saves the configuration, and reloads the ASA:

```
hostname(config)# jumbo-frame reservation
WARNING: this command will take effect after the running-config is saved
and the system has been rebooted. Command accepted.

hostname(config)# write memory
Building configuration...
Cryptochecksum: 718e3706 4edb11ea 69af58d0 0a6b7cb5

70291 bytes copied in 3.710 secs (23430 bytes/sec)
[OK]
hostname(config)# reload
Proceed with reload? [confirm] Y
```

Related Commands

Command	Description
mtu	Specifies the maximum transmission unit for an interface.
show jumbo-frame reservation	Shows the current configuration of the **jumbo-frame reservation** command.

kcd-server

To allow the ASA to join an Active Directory domain, use the **kcd-server** command in webvpn configuration mode. To remove the specified behavior for the ASA, use the **no** form of this command.

kcd-server *aaa-server-group_name* **user** *username* **password** *password*

no kcd-server

Syntax Description

user	Specifies the Active Directory user with service level privileges.
password	Specifies the password for the specified user.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
8.4(1)	This command was introduced.

Usage Guidelines

Use the **kcd-server** command in webvpn configuration mode to allow the ASA to join an Active Directory domain. The domain controller name and realm are specified in the **aaa-server-groupname** command. The AAA server group has to be a Kerberos server type. The **username** and **password** options do not correspond to a user with Administrator privileges, but they should correspond to a user with service-level privileges on the domain controller. The success or failure status is displayed as the result of this command. The result can also be viewed using the **show webvpn kcd** command.

Kerberos Constrained Delegation, or KCD, in the ASA environment provides WebVPN users Single Sign-on (SSO) access to all web services that are protected by Kerberos. The ASA maintains a credential on behalf of the user (a service ticket) and uses this ticket to authenticate the user to the services.

In order for the **kcd-server** command to function, the ASA must establish a trust relationship between the *source* domain (the domain where the ASA resides) and the *target* or *resource* domain (the domain where the web services reside). The ASA, using its unique format, crosses the certification path from the source to the destination domain and acquires the necessary tickets on behalf of the remote access user to access the services.

This path is called cross-realm authentication. During each phase of cross-realm authentication, the ASA relies on the credentials at a particular domain and the trust relationship with the subsequent domain.

To configure the ASA for cross-realm authentication, you must use the following commands to join the Active Directory domain: **ntp**, **hostname**, **dns domain-lookup, dns server-group**.

Examples

The following example shows the usage of the **kcd-server** command:

```
hostname(config)# aaa-server kcd-grp protocol kerberos
hostname(config-aaa-server-group)# aaa-server kcd-grp host DC
hostname(config-aaa-server-group)# kerberos-realm EXAMPLE.COM
hostname(config)# webvpn
hostname(config-webvpn)# kcd-server kcd-grp user Administrator password Cisco123
hostname(config-aaa-server-group)# exit
hostname(config)#
```

The following is a configuration example of cross-realm authentication, where the Domain Controller is 10.1.1.10 (reachable via inside interface) and the domain name is PRIVATE.NET. Additionally, the Service Account username and password on the domain controller is dcuser and dcuser123! .

```
hostname(config)# config t

-----Create an alias for the Domain Controller-------------

hostname(config)# name 10.1.1.10 DC

----Configure the Name server-----------------------------

hostname(config)# ntp server DC

----Enable a DNS lookup by configuring the DNS server and Domain name --------------

hostname(config)# dns domain-lookup inside
hostname(config)# dns server-group DefaultDNS
hostname(config-dns-server-group)# name-server DC
hostname(config-dns-server-group)# domain-name private.net

----Configure the AAA server group with Server and Realm-------------------------------

hostname(config)# aaa-server KerberosGroup protocol Kerberos
hostname(config-asa-server-group)# aaa-server KerberosGroup (inside) host DC
hostname(config-asa-server-group)# Kerberos-realm PRIVATE.NET

----Configure the Domain Join-----------------------------

hostname(config)# webvpn
hostname(config-webvpn)# kcd-server KerberosGroup username dcuser password dcuser123!
hostname(config)#
```

Related Commands

Command	Description
aaa-server	Enters aaa-server configuration mode, so you can configure AAA server parameters.
aaa-server host	Enters aaa-server host configuration mode, so you can configure AAA server parameters that are host-specific.
clear configure aaa-server	Removes all AAA command statements from the configuration.
dns	Specifies the Domain Name Server.
domain-name	Specifies the domain name of the server.

hostname	Specifies the hostname.
ntp	Specifies the transfer protocol.
show aaa-kerberos	Displays server statistics for all AAA Kerberos servers.
show running-config aaa-server	Displays AAA server statistics for all AAA servers, for a particular server group, for a particular server within a particular group, or for a particular protocol.

keepout

To present an administrator-defined message rather than a login page for new user sessions (when the ASA undergoes a maintenance or troubleshooting period), use the **keepout** command in webvpn configuration mode. To remove a previously set keepout page, use the **no** version of the command.

keepout

no keepout *string*

Syntax Description

string	An alphanumeric string in double quotation marks.

Defaults

No keepout page.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

When this command is enabled, the clientless WebVPN portal page becomes unavailable. You receive an administrator-defined message stating the unavailability of the portal rather than a login page for the portal. Use the **keepout** command to disable clientless access, but still allow AnyConnect access. You can also use this command to indicate portal unavailability when maintenance is occurring.

Examples

The following example shows how to configure a keepout page:

```
hostname(config)# webvpn
hostname(config-webvpn)# keepout "The system is unavailable until 7:00 a.m. EST."
hostname(config-webvpn)#
```

Related Commands

Command	Description
webvpn	Enters webvpn configuration mode, which lets you configure attributes for clientless SSL VPN connections.

kerberos-realm

To specify the realm name for this Kerberos server, use the **kerberos-realm** command in aaa-server host configuration mode. To remove the realm name, use the **no** form of this command:

kerberos-realm *string*

no kerberos-realm

Syntax Description

string	A case-sensitive, alphanumeric string, up to 64 characters long. Spaces are not permitted in the string. **Note** Kerberos realm names use numbers and upper case letters only. Although the ASA accepts lower case letters in the *string* argument, it does not translate lower case letters to upper case letters. Be sure to use upper case letters only.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Aaa-server host configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command is valid only for Kerberos servers.

The value of the *string* argument should match the output of the Microsoft Windows **set USERDNSDOMAIN** command when it is run on the Windows 2000 Active Directory server for the Kerberos realm. In the following example, EXAMPLE.COM is the Kerberos realm name:

```
C:\>set USERDNSDOMAIN
USERDNSDOMAIN=EXAMPLE.COM
```

The *string* argument must use numbers and upper case letters only. The **kerberos-realm** command is case sensitive, and the ASA does not translate lower case letters to upper case letters.

Examples

The following sequence shows the **kerberos-realm** command to set the kerberos realm to "EXAMPLE.COM" in the context of configuring a AAA server host:

```
hostname(config)# aaa-server svrgrp1 protocol kerberos
```

```
hostname(config-aaa-server-group)# aaa-server svrgrp1 host 1.2.3.4
hostname(config-aaa-server-host)# timeout 9
hostname(config-aaa-server-host)# retry 7
hostname(config-aaa-server-host)# kerberos-realm EXAMPLE.COM
hostname(config-aaa-server-host)# exit
hostname(config)#
```

Related Commands

Command	Description
aaa-server host	Enter AAA server host configuration submode so you can configure AAA server parameters that are host-specific.
clear configure aaa-server	Remove all AAA command statements from the configuration.
show running-config aaa-server	Displays AAA server statistics for all AAA servers, for a particular server group, for a particular server within a particular group, or for a particular protocol.

key (aaa-server host)

To specify the server secret value used to authenticate the NAS to the AAA server, use the **key** command in aaa-server host configuration mode. The aaa-server host configuration mode is accessibile from aaa-server protocol configuration mode. To remove the key, use the **no** form of this command.

key *key*

no key

Syntax Description

key	An alphanumeric keyword, which can be up to 127 characters long.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Aaa-server host configurationj	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The *key* value is a case-sensitive, alphanumeric keyword of up to 127 characters, which is the same value as the key on the TACACS+ server. Any characters over 127 are ignored. The key is used between the client and the server for encrypting data between them. The key must be the same on both the client and server systems.The key cannot contain spaces, but other special characters are allowed. The key (server secret) value authenticates the ASA to the AAA server.

This command is valid only for RADIUS and TACACS+ servers.

Examples

The following example configures a TACACS+ AAA server named “srvgrp1” on host “1.2.3.4,” sets a timeout of 9 seconds, sets a retry-interval of 7 seconds, and configures the key as “myexclusivemumblekey.”

```
hostname(config)# aaa-server svrgrp1 protocol tacacs+
hostname(config-aaa-server-group)# aaa-server svrgrp1 host 1.2.3.4
hostname(config-aaa-server-host)# timeout 9
hostname(config-aaa-server-host)# retry-interval 7
hostname(config-aaa-server-host)# key myexclusivemumblekey
```

Related Commands

Command	Description
aaa-server host	Enters aaa-server host configuration mode, so that you can configure host-specific AAA server parameters.
clear configure aaa-server	Removes all AAA command statements from the configuration.
show running-config aaa-server	Displays the AAA server configuration.

key (cluster group)

To set an authentication key for control traffic on the cluster control link, use the **key** command in ckuster group configuration mode. To remove the key, use the **no** form of this command.

key *shared_secret*

no key [*shared_secret*]

Syntax Description

shared_secret	Sets the shared secret to an ASCII string from 1 to 63 characters. The shared secret is used to generate the key.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

This command does not affect datapath traffic, including connection state update and forwarded packets, which are always sent in the clear.

Examples

The following example sets a shared secret:

```
hostname(config)# cluster group cluster1
hostname(cfg-cluster)# key chuntheunavoidable
```

Related Commands

Command	Description
clacp system-mac	When using spanned EtherChannels, the ASA uses cLACP to negotiate the EtherChannel with the neighbor switch.
cluster group	Names the cluster and enters cluster configuration mode.
cluster-interface	Specifies the cluster control link interface.
cluster interface-mode	Sets the cluster interface mode.
conn-rebalance	Enables connection rebalancing.

Command	Description
console-replicate	Enables console replication from slave units to the master unit.
enable (cluster group)	Enables clustering.
health-check	Enables the cluster health check feature, which includes unit health monitoring and interface health monitoring.
local-unit	Names the cluster member.
mtu cluster-interface	Specifies the maximum transmission unit for the cluster control link interface.
priority (cluster group)	Sets the priority of this unit for master unit elections.

key config-key password-encryption

To set the passphrase used for generation the encryption key, use the **key config-key password-encryption** command in global configuration mode. To decrypt passwords encrypted with the pass phrase, use the **no** form of this command.

key config-key password-encryption [*new pass phrase* [*old pass phrase*]]

no key config-key password-encryption [*current pass phrase*]

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
8.3(1)	This command was introduced.

Usage Guidelines

When this command is enabled it sets the passphrase used for generation the encryption key. If the pass phrase is configured for the first time, then you will not need to enter the current password. Otherwise, you must enter the current password. The new passphrase must be between 8 and 128 character long. All characters except the back space and double quote will be accepted for the passphrase.

The **write erase** command when followed by the **reload** command will remove the master passphrase if it is lost.

Examples

The following example sets the passphrase used for generating the encryption key:

```
hostname(config)# key config-key password-encryption
```

Related Commands

Command	Description
password encryption aes	Enables password encryption.
write erase	Removes the master passphrase if it is lost when followed by the **reload** command.

keypair

To specify the key pair whose public key is to be certified, use the **keypair** command in crypto ca trustpoint configuration mode. To restore the default setting, use the **no** form of the command.

keypair *name*

no keypair

Syntax Description

name	Specify the name of the key pair.

Defaults

The default setting is not to include the key pair.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Crypto ca trustpoint configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example enters crypto ca trustpoint configuration mode for the trustpoint central, and specifies a key pair to be certified for the trustpoint central:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# keypair exchange
```

Related Commands

Command	Description
crypto ca trustpoint	Enters crypto ca trustpoint configuration mode.
crypto key generate dsa	Generates DSA keys.
crypto key generate rsa	Generates RSA keys.
default enrollment	Returns enrollment parameters to their defaults.

keysize

To specify the size of the public and private keys generated by the local Certificate Authority (CA) server at user certificate enrollment, use the **keysize** command in ca-server configuration mode. To reset the keysize to the default length of 1024 bits, use the **no** form of this command.

keysize {**512** | **768** | **1024** | **2048**}

no keysize

Syntax Description

512	Specifies a size of 512 bits for the public and private keys generated at certificate enrollment.
768	Specifies a size of 768 bits for the public and private keys generated at certificate enrollment.
1024	Specifies a size of 1024 bits for the public and private keys generated at certificate enrollment.
2048	Specifies a size of 2048 bits for the public and private keys generated at certificate enrollment.

Defaults

By default, each key in the key pair is 1024 bits long.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Ca-server configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Examples

The following example specifies a key size of 2048 bits for all public and private key pairs generated for users by the local CA server:

```
hostname(config)# crypto ca server
hostname(config-ca-server))# keysize 2048
hostname(config-ca-server)#
```

The following example resets the key size to the default length of 1024 bits for all public and private key pairs generated for users by the local CA server:

```
hostname(config)# crypto ca server
hostname(config-ca-server)# no keysize
hostname(config-ca-server)#
```

Related Commands

Command	Description
crypto ca server	Provides access to the ca-server configuration mode command set, which allows you to configure and manage the local CA.
issuer-name	Specifies the subject name DN of the certificate authority certificate.
subject-name-default	Specifies a generic subject name DN to be used along with the username in all user certificates issued by a CA server.

keysize server

To specify the size of the public and private keys generated by the local Certificate Authority (CA) server for configuring the size of the CA keypair, use the **keysize server** command in ca-server configuration mode. To reset the keysize to the default length of 1024 bits, use the **no** form of this command.

keysize server{**512** | **768** | **1024** | **2048**}

no keysize server

Syntax Description

512	Specifies a size of 512 bits for the public and private keys generated at certificate enrollment.
768	Specifies a size of 768 bits for the public and private keys generated at certificate enrollment.
1024	Specifies a size of 1024 bits for the public and private keys generated at certificate enrollment.
2048	Specifies a size of 2048 bits for the public and private keys generated at certificate enrollment.

Defaults

By default, each key in the key pair is 1024 bits long.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ca-server configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Examples

The following example specifies a key size of 2048 bits for the CA certificate:

```
hostname(config)# crypto ca server
hostname(config-ca-server))# keysize server 2048
hostname(config-ca-server)#
```

The following example resets the key size to the default length of 1024 bits for the CA certificate:

```
hostname(config)# crypto ca server
hostname(config-ca-server)# no keysize server
hostname(config-ca-server)#
```

Related Commands

Command	Description
crypto ca server	Provides access to the ca-server configuration mode command set, which allows you to configure and manage the local CA.
issuer-name	Specifies the subject name DN of the certificate authority certificate.
keysize	Specifies the key pair size for the user certificate.
subject-name-default	Specifies a generic subject name DN to be used along with the username in all user certificates issued by a CA server.

kill

To terminate a Telnet session, use the **kill** command in privileged EXEC mode.

kill *telnet_id*

Syntax Description

telnet_id	Specifies the Telnet session ID.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **kill** command lets you terminate a Telnet session. Use the **who** command to see the Telnet session ID. When you kill a Telnet session, the ASA lets any active commands terminate and then drops the connection without warning.

Examples

The following example shows how to terminate a Telnet session with the ID "2". First, the **who** command is entered to display the list of active Telnet sessions. Then the **kill 2** command is entered to terminate the Telnet session with the ID "2".

```
hostname# who
2: From 10.10.54.0

hostname# kill 2
```

Related Commands

Command	Description
telnet	Configures Telnet access to the ASA.
who	Displays a list of active Telnet sessions.

CHAPTER 30

l2tp tunnel hello through log-adjacency-changes Commands

l2tp tunnel hello

To specify the interval between hello messages on L2TP over IPsec connections, use the **l2tp tunnel hello** command in global configuration mode. To reset the interval to the default, use the **no** form of the command:

l2tp tunnel hello *interval*

no l2tp tunnel hello *interval*

Syntax Description

interval	Interval between hello messages in seconds. The Default is 60 seconds. The range is 10 to 300 seconds.

Defaults

The default is 60 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

The **l2tp tunnel hello** command enables the ASA to detect problems with the physical layer of the L2TP connection. The default is 60 secs. If you configure it to a lower value, connections that are experiencing problems are disconnected earlier.

Examples

The following example configures the interval between hello messages to 30 seconds:

```
hostname(config)# l2tp tunnel hello 30
```

Related Commands

Command	Description
show vpn-sessiondbdetail remote filter protocol L2TPOverIPsec	Displays the details of L2TP connections.
vpn-tunnel-protocol l2tp-ipsec	Enables L2TP as a tunneling protocol for a specific tunnel group.

lacp max-bundle

To specify the maximum number of active interfaces allowed in the EtherChannel channel group, use the **lacp max-bundle** command in interface configuration mode. To set the value to the default, use the **no** form of this command.

lacp max-bundle *number*

no lacp max-bundle

Syntax Description

number	Sets the maximum number of active interfaces allowed in the EtherChannel channel group, between 1 and 8.

Command Default

The default is 8.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	—	•

Command History

Release	Modification
8.4(1)	We introduced this command.

Usage Guidelines

Enter this command for a port-channel interface. The maximum number of active interfaces per channel group is eight; to decrease the number, use this command.

Examples

The following example sets the maximum number of interfaces in the EtherChannel to four:

```
hostname(config)# interface port-channel 1
hostname(config-if)# lacp max-bundle 4
```

Related Commands

Command	Description
channel-group	Adds an interface to an EtherChannel.
interface port-channel	Configures an EtherChannel.
lacp port-priority	Sets the priority for a physical interface in the channel group.
lacp system-priority	Sets the LACP system priority.
port-channel load-balance	Configures the load-balancing algorithm.

Command	Description
port-channel min-bundle	Specifies the minimum number of active interfaces required for the port-channel interface to become active.
show lacp	Displays LACP information such as traffic statistics, system identifier and neighbor details.
show port-channel	Displays EtherChannel information in a detailed and one-line summary form. This command also displays the port and port-channel information.
show port-channel load-balance	Displays port-channel load-balance information along with the hash result and member interface selected for a given set of parameters.

lacp port-priority

To set the priority for a physical interface in an EtherChannel, use the **lacp port-priority** command in interface configuration mode. To set the priority to the default, use the **no** form of this command.

lacp port-priority *number*

no lacp port-priority

Syntax Description

number	Sets the priority between 1 and 65535. The higher the number, the lower the priority.

Command Default

The default is 32768.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	—	•

Command History

Release	Modification
8.4(1)	We introduced this command.

Usage Guidelines

Enter this command for a physical interface. The ASA uses this setting to decide which interfaces are active and which are standby if you assign more interfaces than can be used. If the port priority setting is the same for all interfaces, then the priority is determined by the interface ID (slot/port). The lowest interface ID is the highest priority. For example, GigabitEthernet 0/0 is a higher priority than GigabitEthernet 0/1.

If you want to prioritize an interface to be active even though it has a higher interface ID, then set this command to have a lower value. For example, to make GigabitEthernet 1/3 active before GigabitEthernet 0/7, then make the **lacp port-priority** value be 12345 on the 1/3 interface vs. the default 32768 on the 0/7 interface.

If the device at the other end of the EtherChannel has conflicting port priorities, the system priority is used to determine which port priorities to use. See the **lacp system-priority** command.

The Link Aggregation Control Protocol (LACP) aggregates interfaces by exchanging the Link Aggregation Control Protocol Data Units (LACPDUs) between two network devices. LACP coordinates the automatic addition and deletion of links to the EtherChannel without user intervention. It also handles misconfigurations and checks that both ends of member interfaces are connected to the correct channel group.

Examples

The following example sets a lower port priority for GigabitEthernet 0/2 so it will be used as part of the EtherChannel ahead of GigabitEthernet 0/0 and 0/1:

```
hostname(config)# interface GigabitEthernet0/0
hostname(config-if)# channel-group 1 mode active
hostname(config-if)# interface GigabitEthernet0/1
hostname(config-if)# channel-group 1 mode active
hostname(config)# interface GigabitEthernet0/2
hostname(config-if)# lacp port-priority 1234
hostname(config-if)# channel-group 1 mode active
```

Related Commands

Command	Description
channel-group	Adds an interface to an EtherChannel.
interface port-channel	Configures an EtherChannel.
lacp max-bundle	Specifies the maximum number of active interfaces allowed in the channel group.
lacp system-priority	Sets the LACP system priority.
port-channel load-balance	Configures the load-balancing algorithm.
port-channel min-bundle	Specifies the minimum number of active interfaces required for the port-channel interface to become active.
show lacp	Displays LACP information such as traffic statistics, system identifier and neighbor details.
show port-channel	Displays EtherChannel information in a detailed and one-line summary form. This command also displays the port and port-channel information.
show port-channel load-balance	Displays port-channel load-balance information along with the hash result and member interface selected for a given set of parameters.

lacp system-priority

For EtherChannels, to set the LACP system priority globally for the ASA, use the **lacp system-priority** command in global configuration mode. To set the value to the default, use the **no** form of this command.

lacp system-priority *number*

no lacp system-priority

Syntax Description

number	Sets the LACP system priority, from 1 to 65535. The default is 32768. The higher the number, the lower the priority. This command is global for the ASA.

Command Default

The default is 32768.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
8.4(1)	We introduced this command.

Usage Guidelines

If the device at the other end of the EtherChannel has conflicting port priorities, the system priority is used to determine which port priorities to use. For interface priorities within an EtherChannel, see the **lacp port-priority** command.

Examples

The following example sets the system priority to be higher than the default (a lower number):

```
hostname(config)# lacp system-priority 12345
```

Related Commands

Command	Description
channel-group	Adds an interface to an EtherChannel.
interface port-channel	Configures an EtherChannel.
lacp max-bundle	Specifies the maximum number of active interfaces allowed in the channel group.
lacp port-priority	Sets the priority for a physical interface in the channel group.

Command	Description
port-channel load-balance	Configures the load-balancing algorithm.
port-channel min-bundle	Specifies the minimum number of active interfaces required for the port-channel interface to become active.
show lacp	Displays LACP information such as traffic statistics, system identifier and neighbor details.
show port-channel	Displays EtherChannel information in a detailed and one-line summary form. This command also displays the port and port-channel information.
show port-channel load-balance	Displays port-channel load-balance information along with the hash result and member interface selected for a given set of parameters.

ldap attribute-map

To create and name an LDAP attribute map for mapping user-defined attribute names to Cisco LDAP attribute names, use the **ldap attribute-map** command in global configuration mode. To remove the map, use the **no** form of this command.

ldap attribute-map *map-name*

no ldap attribute-map *map-name*

Syntax Description

map-name	Specifies a user-defined name for an LDAP attribute map.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

With the **ldap attribute-map** command, you can map your own attribute names and values to Cisco attribute names. You can then bind the resulting attribute map to an LDAP server. Your typical steps would be as follows:

1. Use the **ldap attribute-map** command in global configuration mode to create an unpopulated attribute map. This commands enters ldap-attribute-map configuration mode.
2. Use the **map-name** and **map-value** commands in ldap-attribute-map configuration mode to populate the attribute map.
3. Use the **ldap-attribute-map** command in aaa-server host mode to bind the attribute map to an LDAP server. Note the hyphen after ldap in this command.

Note To use the attribute mapping features correctly, you need to understand both the Cisco LDAP attribute names and values as well as the user-defined attribute names and values.

Examples

The following example command, entered in global configuration mode, creates an LDAP attribute map named myldapmap prior to populating it or binding it to an LDAP server:

```
hostname(config)# ldap attribute-map myldapmap
```

```
hostname(config-ldap-attribute-map)#
```

Related Commands

Command	Description
ldap-attribute-map (aaa-server host mode)	Binds an LDAP attribute map to an LDAP server.
map-name	Maps a user-defined LDAP attribute name to a Cisco LDAP attribute name.
map-value	Maps a user-defined attribute value to the Cisco attribute name.
show running-config ldap attribute-map	Displays a specific running LDAP attribute map or all running attribute maps.
clear configure ldap attribute-map	Removes all LDAP attribute maps.

ldap-attribute-map

To bind an existing mapping configuration to an LDAP host, use the **ldap-attribute-map** command in aaa-server host configuration mode. To remove the binding, use the **no** form of this command.

ldap-attribute-map *map-name*

no ldap-attribute-map *map-name*

Syntax Description

map-name	Specifies an LDAP attribute mapping configuration.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Aaa-server host configuration	•	•	•	•	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

If the Cisco-defined LDAP attribute names do not meet your ease-of-use or other requirements, you can create your own attribute names, map them to Cisco attributes, and then bind the resulting attribute configuration to an LDAP server. Your typical steps would include:

1. Use the **ldap attribute-map** command in global configuration mode to create an unpopulated attribute map. This command enters ldap-attribute-map configuration mode. Note that there is no hyphen after "ldap" in this command.
2. Use the **map-name** and **map-value** commands in ldap-attribute-map configuration mode to populate the attribute mapping configuration.
3. Use the **ldap-attribute-map** command in aaa-server host mode to bind the attribute map configuration to an LDAP server.

Examples

The following example commands, entered in aaa-server host configuration mode, bind an existing attribute map named myldapmap to an LDAP server named ldapsvr1:

```
hostname(config)# aaa-server ldapsvr1 host 10.10.0.1
hostname(config-aaa-server-host)# ldap-attribute-map myldapmap
hostname(config-aaa-server-host)#
```

Related Commands

Command	Description
ldap attribute-map (global configuration mode)	Creates and names an LDAP attribute map for mapping user-defined attribute names to Cisco LDAP attribute names.
map-name	Maps a user-defined LDAP attribute name with a Cisco LDAP attribute name.
map-value	Maps a user-defined attribute value to a Cisco attribute.
show running-config ldap attribute-map	Displays a specific running ldap attribute mapping configuration or all running attribute mapping configurations.
clear configure ldap attribute-map	Removes all LDAP attribute maps.

ldap-base-dn

To specify the location in the LDAP hierarchy where the server should begin searching when it receives an authorization request, use the **ldap-base-dn** command in aaa-server host configuration mode. Aaa-server host configuration mode is accessibile from aaa-server protocol configuration mode. To remove this specification, thus resetting the search to start at the top of the list, use the **no** form of this command.

ldap-base-dn *string*

no ldap-base-dn

Syntax Description

string	A case-sensitive string of up to 128 characters that specifies the location in the LDAP hierarchy where the server should begin searching when it receives an authorization request; for example, OU=Cisco. Spaces are not permitted in the string, but other special characters are allowed.

Defaults

Start the search at the top of the list.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Aaa-server host configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command is valid only for LDAP servers.

Examples

The following example configures an LDAP AAA server named srvgrp1 on host 1.2.3.4, sets a timeout of 9 seconds, sets a retry-interval of 7 seconds, and configures the LDAP base DN as starthere.

```
hostname(config)# aaa-server svrgrp1 protocol ldap
hostname(config-aaa-server-group)# aaa-server svrgrp1 host 1.2.3.4
hostname(config-aaa-server-host)# timeout 9
hostname(config-aaa-server-host)# retry 7
hostname(config-aaa-server-host)# ldap-base-dn starthere
hostname(config-aaa-server-host)# exit
```

Related Commands

Command	Description
aaa-server host	Enters AAA server host configuration mode so you can configure AAA server parameters that are host-specific.
ldap-scope	Specifies the extent of the search in the LDAP hierarchy that the server should make when it receives an authorization request.
ldap-naming-attribute	Specifies the Relative Distinguished Name attribute (or attributes) that uniquely identifies an entry on the LDAP server.
ldap-login-dn	Specifies the name of the directory object that the system should bind as.
ldap-login-password	Specifies the password for the login DN.

ldap-defaults

To define LDAP default values, use the **ldap-defaults** command in crl configure configuration mode. Crl configure configuration mode is accessible from crypto ca trustpoint configuration mode. These default values are used only when the LDAP server requires them. To specify no LDAP defaults, use the **no** form of this command.

ldap-defaults *server* [*port*]

no ldap-defaults

Syntax Description

port	(Optional) Specifies the LDAP server port. If this parameter is not specified, the ASA uses the standard LDAP port (389).
server	Specifies the IP address or domain name of the LDAP server. If one exists within the CRL distribution point, it overrides this value.

Defaults

The default setting is not set.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Crl configure configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example defines LDAP default values on the default port (389):

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# crl configure
hostname(ca-crl)# ldap-defaults ldapdomain4 8389
```

Related Commands

Command	Description
crl configure	Enters ca-crl configuration mode.
crypto ca trustpoint	Enters trustpoint configuration mode.
protocol ldap	Specifies LDAP as a retrieval method for CRLs

ldap-dn

To pass a X.500 distinguished name and password to an LDAP server that requires authentication for CRL retrieval, use the **ldap-dn** command in crl configure configuration mode. Crl configure configuration mode is accessible from crypto ca trustpoint configuration mode. These parameters are used only when the LDAP server requires them. To specify no LDAP DN, use the **no** form of this command.

ldap-dn *x.500-name password*

no ldap-dn

Syntax Description

password	Defines a password for this distinguished name. The maximum field length is 128 characters.
x.500-name	Defines the directory path to access this CRL database, for example: cn=crl,ou=certs,o=CAName,c=US. The maximum field length is 128 characters.

Defaults

The default setting is not on.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Crl configure configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example specifies an X.500 name CN=admin,OU=devtest,O=engineering and a password xxzzyy for trustpoint central:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# crl configure
hostname(ca-crl)# ldap-dn cn=admin,ou=devtest,o=engineering xxzzyy
```

Related Commands

Command	Description
crl configure	Enters crl configure configuration mode.
crypto ca trustpoint	Enters ca trustpoint configuration mode.
protocol ldap	Specifies LDAP as a retrieval method for CRLs.

ldap-group-base-dn

To specify the base group in the Active Directory hierarchy used by dynamic access policies for group searches, use the **ldap-group-base-dn** command in aaa-server host configuration mode. To remove the command from the running configuration, use the **no** form of the command:

ldap-group-base-dn [*string*]

no ldap-group-base-dn [*string*]

Syntax Description

string	A case-sensitive string of up to 128 characters that specifies the location in the Active Directory hierarchy where the server should begin searching. For example, ou=Employees. Spaces are not permitted in the string, but other special characters are allowed.

Defaults

No default behavior or values. If you do not specify a group search DN, the search begins at the base DN.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
aaa-server host configuration mode	•	—	•	—	—

Command History

Release	Modification
8.0(4)	This command was introduced.

Usage Guidelines

The **ldap-group-base-dn** command applies only to Active Directory servers using LDAP, and specifies an Active Directory heirarchy level that the **show ad-groups** command uses to begin its group search. The groups retrieved from the search are used by dynamic group policies as selection criteria for a specific policy.

Examples

The following example sets the group base DN to begin the search at the organization unit (ou) level Employees:

```
hostname(config-aaa-server-host)# ldap-group-base-dn ou=Employees
```

Related Commands

Command	Description
group-search-timeout	Adjusts the time the ASA waits for a response from an Active Directory server for a list of groups.
show ad-groups	Displays groups that are listed on an Active Directory server**.**

ldap-login-dn

To specify the name of the directory object that the system should bind this as, use the **ldap-login-dn** command in aaa-server host configuration mode. Aaa-server host configuration mode is accessibile from aaa-server protocol configuration mode. To remove this specification, use the **no** form of this command.

ldap-login-dn *string*

no ldap-login-dn

Syntax Description

string	A case-sensitive string of up to 128 characters that specifies the name of the directory object in the LDAP hierarchy. Spaces are not permitted in the string, but other special characters are allowed.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Aaa-server host configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command is valid only for LDAP servers. The maximum supported string length is 128 characters.

Some LDAP servers, including the Microsoft Active Directory server, require that the ASAestablish a handshake via authenticated binding before they will accept requests for any other LDAP operations. The ASA identifies itself for authenticated binding by attaching a Login DN field to the user authentication request. The Login DN field describes the authentication characteristics of the ASA. These characteristics should correspond to those of a user with administrator privileges.

For the *string* variable, enter the name of the directory object for VPN Concentrator authenticated binding, for example: cn=Administrator, cn=users, ou=people, dc=XYZ Corporation, dc=com. For anonymous access, leave this field blank.

Examples

The following example configures an LDAP AAA server named svrgrp1 on host 1.2.3.4, sets a timeout of 9 seconds, sets a retry-interval of 7 seconds, and configures the LDAP login DN as myobjectname.

```
hostname(config)# aaa-server svrgrp1 protocol ldap
hostname(config-aaa-server-group)# aaa-server svrgrp1 host 1.2.3.4
hostname(config-aaa-server-host)# timeout 9
```

```
hostname(config-aaa-server-host)# retry 7
hostname(config-aaa-server-host)# ldap-login-dn myobjectname
hostname(config-aaa-server-host)#
```

Related Commands

Command	Description
aaa-server host	Enters AAA server host configuration mode so you can configure AAA server parameters that are host-specific.
ldap-base-dn	Specifies the location in the LDAP hierarchy where the server should begin searching when it receives an authorization request.
ldap-login-password	Specifies the password for the login DN. This command is valid only for LDAP servers.
ldap-naming-attribute	Specifies the Relative Distinguished Name attribute (or attributes) that uniquely identifies an entry on the LDAP server.
ldap-scope	Specifies the extent of the search in the LDAP hierarchy that the server should make when it receives an authorization request.

ldap-login-password

To specify the login password for the LDAP server, use the **ldap-login-password** command in aaa-server host configuration mode. Aaa-server host configuration mode is accessibile from aaa-server protocol configuration mode. To remove this password specification, use the **no** form of this command:

ldap-login-password *string*

no ldap-login-password

Syntax Description

string	A case-sensitive, alphanumeric password, up to 64 characters long. The password cannot contain space characters.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Aaa-server host configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command is valid only for LDAP servers. The maximum password string length is 64 characters.

Examples

The following example configures an LDAP AAA server named srvgrp1 on host 1.2.3.4, sets a timeout of 9 seconds, sets a retry-interval of 7 seconds, and configures the LDAP login password as obscurepassword.

```
hostname(config)# aaa-server svrgrp1 protocol ldap
hostname(config)# aaa-server svrgrp1 host 1.2.3.4
hostname(config-aaa-server)# timeout 9
hostname(config-aaa-server)# retry 7
hostname(config-aaa-server)# ldap-login-password obscurepassword
hostname(config-aaa-server)#
```

Related Commands

Command	Description
aaa-server host	Enters AAA server host configuration mode so you can configure AAA server parameters that are host-specific.
ldap-base-dn	Specifies the location in the LDAP hierarchy where the server should begin searching when it receives an authorization request.
ldap-login-dn	Specifies the name of the directory object that the system should bind as.
ldap-naming-attribute	Specifies the Relative Distinguished Name attribute (or attributes) that uniquely identifies an entry on the LDAP server.
ldap-scope	Specifies the extent of the search in the LDAP hierarchy that the server should make when it receives an authorization request.

ldap-naming-attribute

To specify the Relative Distinguished Name attribute, use the **ldap-naming-attribute** command in aaa-server host configuration mode. Aaa-server host configuration mode is accessibile from aaa-server protocol configuration mode. To remove this specification, use the **no** form of this command:

ldap-naming-attribute *string*

no ldap-naming-attribute

Syntax Description

string	The case-sensitive, alphanumeric Relative Distinguished Name attribute, consisting of up to 128 characters, that uniquely identifies an entry on the LDAP server. Spaces are not permitted in the string, but other special characters are allowed.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Aaa-server host configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Enter the Relative Distinguished Name attribute that uniquely identifies an entry on the LDAP server. Common naming attributes are Common Name (cn) and User ID (uid).

This command is valid only for LDAP servers. The maximum supported string length is 128 characters.

Examples

The following example configures an LDAP AAA server named srvgrp1 on host 1.2.3.4, sets a timeout of 9 seconds, sets a retry-interval of 7 seconds, and configures the LDAP naming attribute as cn.

```
hostname(config)# aaa-server svrgrp1 protocol ldap
hostname(config-aaa-server-group)# aaa-server svrgrp1 host 1.2.3.4
hostname(config-aaa-server-host)# timeout 9
hostname(config-aaa-server-host)# retry 7
hostname(config-aaa-server-host)# ldap-naming-attribute cn
hostname(config-aaa-server-host)#
```

Related Commands

Command	Description
aaa-server host	Enters AAA server host configuration mode so you can configure AAA server parameters that are host-specific.
ldap-base-dn	Specifies the location in the LDAP hierarchy where the server should begin searching when it receives an authorization request.
ldap-login-dn	Specifies the name of the directory object that the system should bind as.
ldap-login-password	Specifies the password for the login DN. This command is valid only for LDAP servers.
ldap-scope	Specifies the extent of the search in the LDAP hierarchy that the server should make when it receives an authorization request.

ldap-over-ssl

To establish a secure SSL connection between the ASA and the LDAP server, use the **ldap-over-ssl** command in aaa-server host configuration mode. To disable SSL for the connection, use the **no** form of this command.

ldap-over-ssl enable

no ldap-over-ssl enable

Syntax Description

enable	Specifies that SSL secures a connection to an LDAP server.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Aaa-server host configuration	•	•	•	•	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

Use this command to specify that SSL secures a connection between the ASA and an LDAP server.

Note We recommend enabling this feature if you are using plain text authentication. See the **sasl-mechanism** command.

Examples

The following commands, entered in aaa-server host configuration mode, enable SSL for a connection between the ASA and the LDAP server named ldapsvr1 at IP address 10.10.0.1. They also configure the plain SASL authentication mechanism.

```
hostname(config)# aaa-server ldapsvr1 protocol ldap
hostname(config-aaa-server-host)# aaa-server ldapsvr1 host 10.10.0.1
hostname(config-aaa-server-host)# ldap-over-ssl enable
hostname(config-aaa-server-host)#
```

Related Commands

Command	Description
sasl-mechanism	Specifies SASL authentication between the LDAP client and server.
server-type	Specifies the LDAP server vendor as either Microsoft or Sun.
ldap attribute-map (global configuration mode)	Creates and names an LDAP attribute map for mapping user-defined attribute names to Cisco LDAP attribute names.

ldap-scope

To specify the extent of the search in the LDAP hierarchy that the server should make when it receives an authorization request, use the **ldap-scope** command in aaa-server host configuration mode. Aaa-server host configuration mode is accessibile from aaa-server protocol configuration mode. To remove this specification, use the **no** form of this command.

ldap-scope *scope*

no ldap-scope

Syntax Description

scope	The number of levels in the LDAP hierarchy for the server to search when it receives an authorization request. Valid values are: • **onelevel**—Search only one level beneath the Base DN • **subtree**—Search all levels beneath the Base DN

Defaults

The default value is **onelevel**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Aaa-server host configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	Pre-existing command, modified for this release

Usage Guidelines

Specifying the scope as **onelevel** results in a faster search, because only one level beneath the Base DN is searched. Specifying **subtree** is slower, because all levels beneath the Base DN are searched.

This command is valid only for LDAP servers.

Examples

The following example configures an LDAP AAA server named svrgrp1 on host 1.2.3.4, sets a timeout of 9 seconds, sets a retry-interval of 7 seconds, and configures the LDAP scope to include the subtree levels.

```
hostname(config)# aaa-server svrgrp1 protocol ldap
hostname(config-aaa-server-group)# aaa-server svrgrp1 host 1.2.3.4
hostname(config-aaa-server-host)# timeout 9
hostname(config-aaa-server-host)# retry 7
hostname(config-aaa-server-host)# ldap-scope subtree
hostname(config-aaa-server-host)#
```

Related Commands

Command	Description
aaa-server host	Enters AAA server host configuration mode so you can configure AAA server parameters that are host-specific.
ldap-base-dn	Specifies the location in the LDAP hierarchy where the server should begin searching when it receives an authorization request.
ldap-login-dn	Specifies the name of the directory object that the system should bind as.
ldap-login-password	Specifies the password for the login DN. This command is valid only for LDAP servers.
ldap-naming-attribute	Specifies the Relative Distinguished Name attribute (or attributes) that uniquely identifies an entry on the LDAP server.

leap-bypass

To enable LEAP Bypass, use the **leap-bypass enable** command in group-policy configuration mode. To disable LEAP Bypass, use the **leap-bypass disable** command. To remove the LEAP Bypass attribute from the running configuration, use the **no** form of this command. This option allows inheritance of a value for LEAP Bypass from another group policy.

leap-bypass {**enable** | **disable**}

no leap-bypass

Syntax Description

disable	Disables LEAP Bypass.
enable	Enables LEAP Bypass.

Defaults

LEAP Bypass is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

When enabled, LEAP Bypass allows LEAP packets from wireless devices behind a VPN hardware client to travel across a VPN tunnel prior to user authentication. This lets workstations using Cisco wireless access point devices establish LEAP authentication. Devices are then able to authenticate again, per user authentication.

This feature does not work as intended if you enable interactive hardware client authentication.

For further information, see the CLI configuration guide.

Note There may be security risks in allowing any unauthenticated traffic to traverse the tunnel.

Examples

The following example shows how to set LEAP Bypass for the group policy named "FirstGroup":

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# leap-bypass enable
```

Related Commands

Command	Description
secure-unit-authentication	Requires VPN hardware clients to authenticate with a username and password each time the client initiates a tunnel.
user-authentication	Requires users behind VPN hardware clients to identify themselves to the ASA before connecting.

license

To configure the authentication key that the ASA sends to the Cloud Web Security proxy servers to indicate from which organization the request comes, use the **license** command in scansafe general-options configuration mode. To remove the license, use the **no** form of this command.

license *hex_key*

no license [*hex_key*]

Syntax Description

hex_key	Specifies the authentication key as a 16-byte hexidecimal number.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

Each ASA must use an authentication key that you obtain from Cloud Web Security. The authentication key lets Cloud Web Security identify the company associated with web requests and ensures that the ASA is associated with valid customer.

You can use one of two types of authentication keys for your ASA: the company key or the group key.

Company Authentication Key

A Company authentication key can be used on multiple ASAs within the same company. This key simply enables the Cloud Web Security service for your ASAs. The administrator generates this key in ScanCenter (https://scancenter.scansafe.com/portal/admin/login.jsp); you have the opportunity to e-mail the key for later use. You cannot look up this key later in ScanCenter; only the last 4 digits are shown in ScanCenter. For more information, see the Cloud Web Security documentation: http://www.cisco.com/en/US/products/ps11720/products_installation_and_configuration_guides_list.html.

Group Authentication Key

A Group authentication key is a special key unique to each ASA that performs two functions:

- Enables the Cloud Web Security service for one ASA.

- Identifies all traffic from the ASA so you can create ScanCenter policy per ASA.

The administrator generates this key in ScanCenter (https://scancenter.scansafe.com/portal/admin/login.jsp); you have the opportunity to e-mail the key for later use. You cannot look up this key later in ScanCenter; only the last 4 digits are shown in ScanCenter. For more information, see the Cloud Web Security documentation: http://www.cisco.com/en/US/products/ps11720/products_installation_and_configuration_guides_list.html.

Examples

The following example configures a primary server only:

```
scansafe general-options
 server primary ip 180.24.0.62 port 8080
 retry-count 5
 license 366C1D3F5CE67D33D3E9ACEC265261E5
```

Related Commands

Command	Description
class-map type inspect scansafe	Creates an inspection class map for whitelisted users and groups.
default user group	Specifies the default username and/or group if the ASA cannot determine the identity of the user coming into the ASA.
http[**s**] (parameters)	Specifies the service type for the inspection policy map, either HTTP or HTTPS.
inspect scansafe	Enables Cloud Web Security inspection on the traffic in a class.
match user group	Matches a user or group for a whitelist.
policy-map type inspect scansafe	Creates an inspection policy map so you can configure essential parameters for the rule and also optionally identify the whitelist.
retry-count	Enters the retry counter value, which is the amount of time that the ASA waits before polling the Cloud Web Security proxy server to check its availability.
scansafe	In multiple context mode, allows Cloud Web Security per context.
scansafe general-options	Configures general Cloud Web Security server options.
server {**primary** | **backup**}	Configures the fully qualified domain name or IP address of the primary or backup Cloud Web Security proxy servers.
show conn scansafe	Shows all Cloud Web Security connections, as noted by the capitol Z flag.
show scansafe server	Shows the status of the server, whether it's the current active server, the backup server, or unreachable.
show scansafe statistics	Shows total and current http connections.
user-identity monitor	Downloads the specified user or group information from the AD agent.
whitelist	Performs the whitelist action on the class of traffic.

license-server address

To identify the shared licensing server IP address and shared secret for use by a participant, use the **license-server address** command in global configuration mode. To disable participation in shared licensing, use the **no** form of this command. A shared license lets you purchase a large number of SSL VPN sessions and share the sessions as needed amongst a group of ASAs by configuring one of the ASAs as a shared licensing server, and the rest as shared licensing participants.

license-server address *address* **secret** *secret* [**port** *port*]

no license-server address [*address* **secret** *secret* [**port** *port*]]

Syntax Description

address	Identifies the shared licensing server IP address.
port *port*	(Optional) If you changed the default port in the server configuration using the **license-server port** command, set the port for the backup server to match, between 1 and 65535. The default port is 50554.
secret *secret*	Identifies the shared secret. The secret muct match the secret set on the server using the **license-server secret** command.

Command Default

The default port is 50554.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•		—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

The shared licensing participant must have a shared licensing participant key. Use the **show activation-key** command to check your installed licenses.

You can only specify one shared license server for each participant.

The following steps describe how shared licenses operate:

1. Decide which ASA should be the shared licensing server, and purchase the shared licensing server license using that device serial number.
2. Decide which ASAs should be shared licensing participants, including the shared licensing backup server, and obtain a shared licensing participant license for each device, using each device serial number.

3. (Optional) Designate a second ASA as a shared licensing backup server. You can only specify one backup server.

Note The shared licensing backup server only needs a participant license.

4. Configure a shared secret on the shared licensing server; any participants with the shared secret can use the shared license.
5. When you configure the ASA as a participant, it registers with the shared licensing server by sending information about itself, including the local license and model information.

Note The participant needs to be able to communicate with the server over the IP network; it does not have to be on the same subnet.

6. The shared licensing server responds with information about how often the participant should poll the server.
7. When a participant uses up the sessions of the local license, it sends a request to the shared licensing server for additional sessions in 50-session increments.
8. The shared licensing server responds with a shared license. The total sessions used by a participant cannot exceed the maximum sessions for the platform model.

Note The shared licensing server can also participate in the shared license pool if it runs out of local sessions. It does not need a participant license as well as the server license to participate.

   a. If there are not enough sessions left in the shared license pool for the participant, then the server responds with as many sessions as available.
   b. The participant continues to send refresh messages requesting more sessions until the server can adequately fulfill the request.

9. When the load is reduced on a participant, it sends a message to the server to release the shared sessions.

Note The ASA uses SSL between the server and participant to encrypt all communications.

Communication Issues Between Participant and Server

See the following guidelines for communication issues between the participant and server:

- If a participant fails to send a refresh after 3 times the refresh interval, then the server releases the sessions back into the shared license pool.
- If the participant cannot reach the license server to send the refresh, then the participant can continue to use the shared license it received from the server for up to 24 hours.
- If the participant is still not able to communicate with a license server after 24 hours, then the participant releases the shared license, even if it still needs the sessions. The participant leaves existing connections established, but cannot accept new connections beyond the license limit.

- If a participant reconnects with the server before 24 hours expires, but after the server expired the participant sessions, then the participant needs to send a new request for the sessions; the server responds with as many sessions as can be reassigned to that participant.

Examples

The following example sets the license server IP address and shared secret, as well as the backup license server IP address:

```
hostname(config)# license-server address 10.1.1.1 secret farscape
hostname(config)# license-server backup address 10.1.1.2
```

Related Commands

Command	Description
activation-key	Enters a license activation key.
clear configure license-server	Clears the shared licensing server configuration.
clear shared license	Clears shared license statistics.
license-server backup address	Identifies the shared licensing backup server for a participant.
license-server backup backup-id	Identifies the backup server IP address and serial number for the main shared licensing server.
license-server backup enable	Enables a unit to be the shared licensing backup server.
license-server enable	Enables a unit to be the shared licensing server.
license-server port	Sets the port on which the server listens for SSL connections from participants.
license-server refresh-interval	Sets the refresh interval provided to participants to set how often they should communicate with the server.
license-server secret	Sets the shared secret on the shared licensing server.
show activation-key	Shows the current licenses installed.
show running-config license-server	Shows the shared licensing server configuration.
show shared license	Shows shared license statistics.
show vpn-sessiondb	Shows license information about VPN sessions.

license-server backup address

To identify the shared licensing backup server IP address for use by a participant, use the **license-server backup address** command in global configuration mode. To disable use of the backup server, use the **no** form of this command.

license-server backup address *address*

no license-server address [*address*]

Syntax Description

address	Identifies the shared licensing backup server IP address.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•		—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

The shared licensing backup server must have the **license-server backup enable** command configured.

Examples

The following example sets the license server IP address and shared secret, as well as the backup license server IP address:

```
hostname(config)# license-server address 10.1.1.1 secret farscape
hostname(config)# license-server backup address 10.1.1.2
```

Related Commands

Command	Description
activation-key	Enters a license activation key.
clear configure license-server	Clears the shared licensing server configuration.
clear shared license	Clears shared license statistics.
license-server address	Identifies the shared licensing server IP address and shared secret for a participant.

Command	Description
license-server backup backup-id	Identifies the backup server IP address and serial number for the main shared licensing server.
license-server backup enable	Enables a unit to be the shared licensing backup server.
license-server enable	Enables a unit to be the shared licensing server.
license-server port	Sets the port on which the server listens for SSL connections from participants.
license-server refresh-interval	Sets the refresh interval provided to participants to set how often they should communicate with the server.
license-server secret	Sets the shared secret on the shared licensing server.
show activation-key	Shows the current licenses installed.
show running-config license-server	Shows the shared licensing server configuration.
show shared license	Shows shared license statistics.
show vpn-sessiondb	Shows license information about VPN sessions.

license-server backup backup-id

To identify the shared licensing backup server in the main shared licensing server configuration, use the **license-server backup backup-id** command in global configuration mode. To remove the backup server configuration, use the **no** form of this command.

license-server backup *address* **backup-id** *serial_number* [**ha-backup-id** *ha_serial_number*]

no license-server backup *address* [**backup-id** *serial_number* [**ha-backup-id** *ha_serial_number*]]

Syntax Description

address	Identifies the shared licensing backup server IP address.
backup-id *serial_number*	Identifies the shared licensing backup server serial number.
ha-backup-id *ha_serial_number*	If you use failover for the backup server, identifies the secondary shared licensing backup server serial number.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	—	•		—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

You can only identify 1 backup server and its optional standby unit.

To view the backup server serial number, enter the **show activation-key** command.

To enable a participant to be the backup server, use the **license-server backup enable** command.

The shared licensing backup server must register successfully with the main shared licensing server before it can take on the backup role. When it registers, the main shared licensing server syncs server settings as well as the shared license information with the backup, including a list of registered participants and the current license usage. The main server and backup server sync the data at 10 second intervals. After the initial sync, the backup server can successfully perform backup duties, even after a reload.

When the main server goes down, the backup server takes over server operation. The backup server can operate for up to 30 continuous days, after which the backup server stops issuing sessions to participants, and existing sessions time out. Be sure to reinstate the main server within that 30-day period. Critical-level syslog messages are sent at 15 days, and again at 30 days.

When the main server comes back up, it syncs with the backup server, and then takes over server operation.

When the backup server is not active, it acts as a regular participant of the main shared licensing server.

Note When you first launch the main shared licensing server, the backup server can only operate independently for 5 days. The operational limit increases day-by-day, until 30 days is reached. Also, if the main server later goes down for any length of time, the backup server operational limit decrements day-by-day. When the main server comes back up, the backup server starts to increment again day-by-day. For example, if the main server is down for 20 days, with the backup server active during that time, then the backup server will only have a 10-day limit left over. The backup server "recharges" up to the maximum 30 days after 20 more days as an inactive backup. This recharging function is implemented to discourage misuse of the shared license.

Examples

The following example sets the shared secret, changes the refresh interval and port, configures a backup server, and enables this unit as the shared licensing server on the inside interface and dmz interface:

```
hostname(config)# license-server secret farscape
hostname(config)# license-server refresh-interval 100
hostname(config)# license-server port 40000
hostname(config)# license-server backup 10.1.1.2 backup-id JMX0916L0Z4 ha-backup-id
JMX1378N0W3
hostname(config)# license-server enable inside
hostname(config)# license-server enable dmz
```

Related Commands

Command	Description
activation-key	Enters a license activation key.
clear configure license-server	Clears the shared licensing server configuration.
clear shared license	Clears shared license statistics.
license-server address	Identifies the shared licensing server IP address and shared secret for a participant.
license-server backup address	Identifies the shared licensing backup server for a participant.
license-server backup enable	Enables a unit to be the shared licensing backup server.
license-server enable	Enables a unit to be the shared licensing server.
license-server port	Sets the port on which the server listens for SSL connections from participants.
license-server refresh-interval	Sets the refresh interval provided to participants to set how often they should communicate with the server.
license-server secret	Sets the shared secret on the shared licensing server.
show activation-key	Shows the current licenses installed.
show running-config license-server	Shows the shared licensing server configuration.
show shared license	Shows shared license statistics.
show vpn-sessiondb	Shows license information about VPN sessions.

license-server backup enable

To enable this unit to be the shared licensing backup server, use the **license-server backup enable** command in global configuration mode. To disable the backup server, use the **no** form of this command.

license-server backup enable *interface_name*

no license-server enable *interface_name*

Syntax Description

interface_name	Specifies the interface on which participants contact the backup server. You can repeat this command for as many interfaces as desired.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•		—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

The backup server must have a shared licensing participant key.

The shared licensing backup server must register successfully with the main shared licensing server before it can take on the backup role. When it registers, the main shared licensing server syncs server settings as well as the shared license information with the backup, including a list of registered participants and the current license usage. The main server and backup server sync the data at 10 second intervals. After the initial sync, the backup server can successfully perform backup duties, even after a reload.

When the main server goes down, the backup server takes over server operation. The backup server can operate for up to 30 continuous days, after which the backup server stops issuing sessions to participants, and existing sessions time out. Be sure to reinstate the main server within that 30-day period. Critical-level syslog messages are sent at 15 days, and again at 30 days.

When the main server comes back up, it syncs with the backup server, and then takes over server operation.

When the backup server is not active, it acts as a regular participant of the main shared licensing server.

Note When you first launch the main shared licensing server, the backup server can only operate independently for 5 days. The operational limit increases day-by-day, until 30 days is reached. Also, if the main server later goes down for any length of time, the backup server operational limit decrements day-by-day. When the main server comes back up, the backup server starts to increment again day-by-day. For example, if the main server is down for 20 days, with the backup server active during that time, then the backup server will only have a 10-day limit left over. The backup server "recharges" up to the maximum 30 days after 20 more days as an inactive backup. This recharging function is implemented to discourage misuse of the shared license.

Examples

The following example identifies the license server and shared secret, and enables this unit as the backup shared license server on the inside interface and dmz interface.

```
hostname(config)# license-server address 10.1.1.1 secret farscape
hostname(config)# license-server backup enable inside
hostname(config)# license-server backup enable dmz
```

Related Commands

Command	Description
activation-key	Enters a license activation key.
clear configure license-server	Clears the shared licensing server configuration.
clear shared license	Clears shared license statistics.
license-server address	Identifies the shared licensing server IP address and shared secret for a participant.
license-server backup address	Identifies the shared licensing backup server for a participant.
license-server backup backup-id	Identifies the backup server IP address and serial number for the main shared licensing server.
license-server enable	Enables a unit to be the shared licensing server.
license-server port	Sets the port on which the server listens for SSL connections from participants.
license-server refresh-interval	Sets the refresh interval provided to participants to set how often they should communicate with the server.
license-server secret	Sets the shared secret on the shared licensing server.
show activation-key	Shows the current licenses installed.
show running-config license-server	Shows the shared licensing server configuration.
show shared license	Shows shared license statistics.
show vpn-sessiondb	Shows license information about VPN sessions.

license-server enable

To identify this unit as a shared licensing server, use the **license-server enable** command in global configuration mode. To disable the shared licensing server, use the **no** form of this command. A shared license lets you purchase a large number of SSL VPN sessions and share the sessions as needed amongst a group of ASAs by configuring one of the ASAs as a shared licensing server, and the rest as shared licensing participants.

license-server enable *interface_name*

no license-server enable *interface_name*

Syntax Description

interface_name	Specifies the interface on which participants contact the server. You can repeat this command for as many interfaces as desired.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

The shared licensing server must have a shared licensing server key. Use the **show activation-key** command to check your installed licenses.

The following steps describe how shared licenses operate:

1. Decide which ASA should be the shared licensing server, and purchase the shared licensing server license using that device serial number.
2. Decide which ASAs should be shared licensing participants, including the shared licensing backup server, and obtain a shared licensing participant license for each device, using each device serial number.
3. (Optional) Designate a second ASA as a shared licensing backup server. You can only specify one backup server.

Note The shared licensing backup server only needs a participant license.

4. Configure a shared secret on the shared licensing server; any participants with the shared secret can use the shared license.
5. When you configure the ASA as a participant, it registers with the shared licensing server by sending information about itself, including the local license and model information.

Note The participant needs to be able to communicate with the server over the IP network; it does not have to be on the same subnet.

6. The shared licensing server responds with information about how often the participant should poll the server.
7. When a participant uses up the sessions of the local license, it sends a request to the shared licensing server for additional sessions in 50-session increments.
8. The shared licensing server responds with a shared license. The total sessions used by a participant cannot exceed the maximum sessions for the platform model.

Note The shared licensing server can also participate in the shared license pool if it runs out of local sessions. It does not need a participant license as well as the server license to participate.

   a. If there are not enough sessions left in the shared license pool for the participant, then the server responds with as many sessions as available.
   b. The participant continues to send refresh messages requesting more sessions until the server can adequately fulfill the request.
9. When the load is reduced on a participant, it sends a message to the server to release the shared sessions.

Note The ASA uses SSL between the server and participant to encrypt all communications.

Communication Issues Between Participant and Server

See the following guidelines for communication issues between the participant and server:

- If a participant fails to send a refresh after 3 times the refresh interval, then the server releases the sessions back into the shared license pool.
- If the participant cannot reach the license server to send the refresh, then the participant can continue to use the shared license it received from the server for up to 24 hours.
- If the participant is still not able to communicate with a license server after 24 hours, then the participant releases the shared license, even if it still needs the sessions. The participant leaves existing connections established, but cannot accept new connections beyond the license limit.
- If a participant reconnects with the server before 24 hours expires, but after the server expired the participant sessions, then the participant needs to send a new request for the sessions; the server responds with as many sessions as can be reassigned to that participant.

Examples

The following example sets the shared secret, changes the refresh interval and port, configures a backup server, and enables this unit as the shared licensing server on the inside interface and DMZ interface:

```
hostname(config)# license-server secret farscape
```

```
hostname(config)# license-server refresh-interval 100
hostname(config)# license-server port 40000
hostname(config)# license-server backup 10.1.1.2 backup-id JMX0916L0Z4 ha-backup-id
JMX1378N0W3
hostname(config)# license-server enable inside
hostname(config)# license-server enable dmz
```

Related Commands

Command	Description
activation-key	Enters a license activation key.
clear configure license-server	Clears the shared licensing server configuration.
clear shared license	Clears shared license statistics.
license-server address	Identifies the shared licensing server IP address and shared secret for a participant.
license-server backup address	Identifies the shared licensing backup server for a participant.
license-server backup backup-id	Identifies the backup server IP address and serial number for the main shared licensing server.
license-server backup enable	Enables a unit to be the shared licensing backup server.
license-server port	Sets the port on which the server listens for SSL connections from participants.
license-server refresh-interval	Sets the refresh interval provided to participants to set how often they should communicate with the server.
license-server secret	Sets the shared secret on the shared licensing server.
show activation-key	Shows the current licenses installed.
show running-config license-server	Shows the shared licensing server configuration.
show shared license	Shows shared license statistics.
show vpn-sessiondb	Shows license information about VPN sessions.

license-server port

To set the port on which the shared licensing server listens for SSL connections from participants, use the **license-server port** command in global configuration mode. To restore the default port, use the **no** form of this command.

license-server port *port*

no license-server port [*port*]

Syntax Description

seconds	Sets the port on which the server listens for SSL connections from participants, between 1 and 65535. The default is TCP port 50554.

Command Default

The default port is 50554.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•		—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

If you change the port from the default, be sure to set the same port for each participant using the **license-server address** command.

Examples

The following example sets the shared secret, changes the refresh interval and port, configures a backup server, and enables this unit as the shared licensing server on the inside interface and DMZ interface:

```
hostname(config)# license-server secret farscape
hostname(config)# license-server refresh-interval 100
hostname(config)# license-server port 40000
hostname(config)# license-server backup 10.1.1.2 backup-id JMX0916L0Z4 ha-backup-id
JMX1378N0W3
hostname(config)# license-server enable inside
hostname(config)# license-server enable dmz
```

Related Commands

Command	Description
activation-key	Enters a license activation key.
clear configure license-server	Clears the shared licensing server configuration.
clear shared license	Clears shared license statistics.
license-server address	Identifies the shared licensing server IP address and shared secret for a participant.
license-server backup address	Identifies the shared licensing backup server for a participant.
license-server backup backup-id	Identifies the backup server IP address and serial number for the main shared licensing server.
license-server backup enable	Enables a unit to be the shared licensing backup server.
license-server enable	Enables a unit to be the shared licensing server.
license-server refresh-interval	Sets the refresh interval provided to participants to set how often they should communicate with the server.
license-server secret	Sets the shared secret on the shared licensing server.
show activation-key	Shows the current licenses installed.
show running-config license-server	Shows the shared licensing server configuration.
show shared license	Shows shared license statistics.
show vpn-sessiondb	Shows license information about VPN sessions.

license-server refresh-interval

To set the refresh interval provided to participants to set how often they should communicate with the shared licensing server, use the **license-server refresh-interval** command in global configuration mode. To restore the default refresh interval, use the **no** form of this command.

license-server refresh-interval *seconds*

no license-server refresh-interval [*seconds*]

Syntax Description

seconds	Sets the refresh interval between 10 and 300 seconds. The default is 30 seconds.

Command Default

The default is 30 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•		—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

Each participant regularly communicates with the shared licensing server using SSL so the shared licensing server can keep track of current license usage and receive and respond to license requests.

Examples

The following example sets the shared secret, changes the refresh interval and port, configures a backup server, and enables this unit as the shared licensing server on the inside interface and dmz interface:

```
hostname(config)# license-server secret farscape
hostname(config)# license-server refresh-interval 100
hostname(config)# license-server port 40000
hostname(config)# license-server backup 10.1.1.2 backup-id JMX0916L0Z4 ha-backup-id
JMX1378N0W3
hostname(config)# license-server enable inside
hostname(config)# license-server enable dmz
```

Related Commands

Command	Description
activation-key	Enters a license activation key.
clear configure license-server	Clears the shared licensing server configuration.
clear shared license	Clears shared license statistics.
license-server address	Identifies the shared licensing server IP address and shared secret for a participant.
license-server backup address	Identifies the shared licensing backup server for a participant.
license-server backup backup-id	Identifies the backup server IP address and serial number for the main shared licensing server.
license-server backup enable	Enables a unit to be the shared licensing backup server.
license-server enable	Enables a unit to be the shared licensing server.
license-server port	Sets the port on which the server listens for SSL connections from participants.
license-server secret	Sets the shared secret on the shared licensing server.
show activation-key	Shows the current licenses installed.
show running-config license-server	Shows the shared licensing server configuration.
show shared license	Shows shared license statistics.
show vpn-sessiondb	Shows license information about VPN sessions.

license-server secret

To set the shared secret on the shared licensing server, use the **license-server secret** command in global configuration mode. To remove the secret, use the **no** form of this command.

license-server secret *secret*

no license-server secret *secret*

Syntax Description

secret	Sets the shared secret, a string between 4 and 128 ASCII characters.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•		—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

Any participant with this secret identified in the **license-server address** command can use the licensing server.

Examples

The following example sets the shared secret, changes the refresh interval and port, configures a backup server, and enables this unit as the shared licensing server on the inside interface and dmz interface:

```
hostname(config)# license-server secret farscape
hostname(config)# license-server refresh-interval 100
hostname(config)# license-server port 40000
hostname(config)# license-server backup 10.1.1.2 backup-id JMX0916L0Z4 ha-backup-id
JMX1378N0W3
hostname(config)# license-server enable inside
hostname(config)# license-server enable dmz
```

Related Commands

Command	Description
activation-key	Enters a license activation key.
clear configure license-server	Clears the shared licensing server configuration.

Command	Description
clear shared license	Clears shared license statistics.
license-server address	Identifies the shared licensing server IP address and shared secret for a participant.
license-server backup address	Identifies the shared licensing backup server for a participant.
license-server backup backup-id	Identifies the backup server IP address and serial number for the main shared licensing server.
license-server backup enable	Enables a unit to be the shared licensing backup server.
license-server enable	Enables a unit to be the shared licensing server.
license-server port	Sets the port on which the server listens for SSL connections from participants.
license-server refresh-interval	Sets the refresh interval provided to participants to set how often they should communicate with the server.
show activation-key	Shows the current licenses installed.
show running-config license-server	Shows the shared licensing server configuration.
show shared license	Shows shared license statistics.
show vpn-sessiondb	Shows license information about VPN sessions.

lifetime (ca server mode)

To specify the length of time that the Local Certificate Authority (CA) certificate, each issued user certificates, or the Certificate Revocation List (CRL) is valid, use the **lifetime** command in ca server configuration mode. To reset the lifetime to the default setting, use the **no** form of this command.

lifetime {**ca-certificate | certificate | crl**} *time*

no lifetime {**ca-certificate | certificate | crl**}

Syntax Description

ca-certificate	Specifies the lifetime of the local CA server certificate.
certificate	Specifies the lifetime of all user certificates issued by the CA server.
crl	Specifies the lifetime of the CRL.
time	For the CA certificate and all issued certificates, *time* specifies the number of days the certificate is valid. The valid range is from 1 to 3650 days. For the CRL, *time* specifies the number of hours the CRL is valid. The valid range for the CRL is from 1 to 720 hours.

Defaults

The default lifetimes are:

- CA certificate—Three years
- Issued certificates—One year
- CRL—Six hours

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Ca server configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

By specifying the number of days or hours that a certificate or CRL is valid, this command determines the expiration date included in the certificate or the CRL.

The **lifetime ca-certificate** command takes effect when the local CA server certificate is first generated (that is, when you initially configure the local CA server and issue the **no shutdown** command). When the CA certificate expires, the configured lifetime value is used to generate the new CA certificate. You cannot change the lifetime value for existing CA certificates.

Examples

The following example configures the CA to issue certificates that are valid for three months:

```
hostname(config)# crypto ca server
hostname(config-ca-server)# lifetime certificate 90
hostname(config-ca-server))#
```

The following example configures the CA to issue a CRL that is valid for two days:

```
hostname(config)# crypto ca server
hostname(config-ca-server)# lifetime crl 48
hostname(config-ca-server)#
```

Related Commands

Command	Description
cdp-url	Specifies the certificate revocation list distribution point (CDP) to be included in the certificates issued by the CA.
crypto ca server	Provides access to the ca server configuration mode command set, which allows you to configure and manage the local CA.
crypto ca server crl issue	Forces the issuance of a CRL.
show crypto ca server	Displays the local CA configuration details in ASCII text.
show crypto ca server cert-db	Displays local CA server certificates.
show crypto ca server crl	Displays the current CRL of the local CA.

lifetime (ikev2 policy mode)

To specify the encryption algorithm in an IKEv2 security association (SA) for AnyConnect IPsec connections, use the **encryption** command in IKEv2 policy configuration mode. To remove the command and use the default setting, use the **no** form of this command:

lifetime {{ **seconds** *seconds*} | **none** }

Syntax Description

seconds	The lifetime in seconds, from 120 to 2,147,483,647 seconds. The default is 86,400 seconds (24 hours).

Defaults

The default is 86,400 seconds (24 hours).

Usage Guidelines

An IKEv2 SA is a key used in phase 1 to enable IKEv2 peers to communicate securely in phase 2. After entering the **crypto ikev2 policy** command, use the **lifetime** command to set the SA lifetime.

The lifetime sets the interval for IKEv2 SA rekeys. Using the none keyword disables rekeying the SA. However, the AnyConnect client can still rekey the SA.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
8.4(1)	This command was added.

Examples

The following example enters IKEv2 policy configuration mode and sets the lifetime to 43,200 seconds (12 hours):

```
hostname(config)# crypto ikev2 policy 1
hostname(config-ikev2-policy)# lifetime 43200
```

Related Commands

Command	Description
encryption	Specifies the encryption algorithm in an IKEv2 SA for AnyConnect IPsec connections.
group	Specifies the Diffie-Hellman group in an IKEv2 SA for AnyConnect IPsec connections.

Command	Description
integrity	Specifies the ESP integrity algorithm in an IKEv2 SA for AnyConnect IPsec connections.
prf	Specifies the pseudo-random function in an IKEv2 SA for AnyConnect IPsec connections.

limit-resource

To specify a resource limit for a class in multiple context mode, use the **limit-resource** command in class configuration mode. To restore the limit to the default, use the **no** form of this command. The ASA manages resources by assigning contexts to resource classes. Each context uses the resource limits set by the class.

limit-resource [**rate**] {**all** | *resource_name*} *number*[**%**]}

no limit-resource {**all** | [**rate**] *resource_name*}

Syntax Description

all	Sets the limit for all resources.
number[**%**]	Specifies the resource limit as a fixed number greater than or equal to 1, or as a percentage of the system limit between 1 and 100 (when used with the percent sign (%)). Set the limit to **0** to indicate an unlimited resource, or for VPN resource types, to set the limit to none. For resources that do not have a system limit, you cannot set the percentage (%); you can only set an absolute value.
rate	Specifies that you want to set the rate per second for a resource. See Table 30-1 for resources for which you can set the rate per second.
resource_name	Specifies the resource name for which you want to set a limit. This limit overrides the limit set for **all**.

Defaults

All contexts belong to the default class if they are not assigned to another class; you do not have to actively assign a context to the default class.

For most resources, the default class provides unlimited access to resources for all contexts, except for the following limits:

- Telnet sessions—5 sessions. (The maximum per context.)
- SSH sessions—5 sessions. (The maximum per context.)
- IPsec sessions—5 sessions. (The maximum per context.)
- MAC addresses—65,535 entries. (The maximum per context.)
- VPN site-to-site tunnels—0 sessions. (You must manually configure the class to allow any VPN sessions.)

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	—	—	•

Command History

Release	Modification
7.2(1)	This command was introduced.
9.0(1)	A new resource type, routes, was created to set the maximum number of routing table entries in each context. New resource types, vpn other and vpn burst other, were created to set the maximum number of site-to-site VPN tunnels in each context.

Usage Guidelines

By default, all security contexts have unlimited access to the resources of the ASA, except where maximum limits per context are enforced; the only exception is VPN resources, which are disabled by default. If you find that one or more contexts use too many resources, and they cause other contexts to be denied connections, for example, then you can configure resource management to limit the use of resources per context. For VPN resources, you must configure resource management to allow any VPN tunnels.

Table 30-1 lists the resource types and the limits. See also the **show resource types** command.

Table 30-1 Resource Names and Limits

Resource Name	Rate or Concurrent	Minimum and Maximum Number per Context	System Limit[1]	Description
asdm	Concurrent	1 minimum 5 maximum	32	ASDM management sessions. **Note** ASDM sessions use two HTTPS connections: one for monitoring that is always present, and one for making configuration changes that is present only when you make changes. For example, the system limit of 32 ASDM sessions represents a limit of 64 HTTPS sessions.
conns	Concurrent or Rate	N/A	Concurrent connections: See the CLI configuration guide for the connection limit for your platform. Rate: N/A	TCP or UDP connections between any two hosts, including connections between one host and multiple other hosts.
hosts	Concurrent	N/A	N/A	Hosts that can connect through the ASA.
inspects	Rate	N/A	N/A	Application inspections.
mac-addresses	Concurrent	N/A	65,535	For transparent firewall mode, the number of MAC addresses allowed in the MAC address table.
routes	Concurrent	N/A	N/A	Dynamic routes.
ssh	Concurrent	1 minimum 5 maximum	100	SSH sessions.
syslogs	Rate	N/A	N/A	System log messages.

Table 30-1 Resource Names and Limits (continued)

Resource Name	Rate or Concurrent	Minimum and Maximum Number per Context	System Limit[1]	Description
telnet	Concurrent	1 minimum 5 maximum	100	Telnet sessions.
vpn burst other	Concurrent	N/A	The Other VPN session amount for your model minus the sum of the sessions assigned to all contexts for **vpn other**.	The number of site-to-site VPN sessions allowed beyond the amount assigned to a context with **vpn other**. For example, if your model supports 5000 sessions, and you assign 4000 sessions across all contexts with **vpn other**, then the remaining 1000 sessions are available for **vpn burst other**. Unlike **vpn other**, which guarantees the sessions to the context, **vpn burst other** can be oversubscribed; the burst pool is available to all contexts on a first-come, first-served basis.
vpn other	Concurrent	N/A	See the "Supported Feature Licenses Per Model" section in the CLI configuration guide for the Other VPN sessions available for your model.	Site-to-site VPN sessions. You cannot oversubscribe this resource; all context assignments combined cannot exceed the model limit. The sessions you assign for this resource are guaranteed to the context.
xlates	Concurrent	N/A	N/A	Address translations.

1. If this column value is N/A, then you cannot set a percentage of the resource because there is no hard system limit for the resource.

Examples

The following example sets the default class limit for conns to 10 percent instead of unlimited:

```
hostname(config)# class default
hostname(config-class)# limit-resource conns 10%
```

All other resources remain at unlimited.

To add a class called gold, enter the following commands:

```
hostname(config)# class gold
hostname(config-class)# limit-resource mac-addresses 10000
hostname(config-class)# limit-resource conns 15%
hostname(config-class)# limit-resource rate conns 1000
hostname(config-class)# limit-resource rate inspects 500
hostname(config-class)# limit-resource hosts 9000
hostname(config-class)# limit-resource asdm 5
hostname(config-class)# limit-resource ssh 5
hostname(config-class)# limit-resource rate syslogs 5000
hostname(config-class)# limit-resource telnet 5
hostname(config-class)# limit-resource xlates 36000
hostname(config-class)# limit-resource routes 700
```

Related Commands

Command	Description
class	Creates a resource class.
context	Configures a security context.
member	Assigns a context to a resource class.
show resource allocation	Shows how you allocated resources across classes.
show resource types	Shows the resource types for which you can set limits.

lmfactor

To set a revalidation policy for caching objects that have only the last-modified timestamp, and no other server-set expiration values, use the **lmfactor** command in cache configuration mode. To set a new policy for revalidating such objects, use the command again. To reset the attribute to the default value of 20, enter the **no** version of the command.

lmfactor *value*

no lmfactor

Syntax Description

value	An integer in the range of 0 to 100.

Defaults

The default value is 20.

Command Modes

The following table shows the modes in which you enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Cache configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

The ASA uses the value of the lmfactor to estimate the length of time for which it considers a cached object to be unchanged. This is known as the expiration time. The ASA estimates th expiration time by the time elapsed since the last modification multiplied by the lmfactor.

Setting the lmfactor to zero is equivalent to forcing an immediate revalidation, while setting it to 100 results in the longest allowable time until revalidation.

Examples

The following example shows how to set an lmfactor of 30:

```
hostname(config)# webvpn
hostname(config-webvpn)# cache
hostname(config-webvpn-cache)# lmfactor 30
hostname(config-webvpn-cache)#
```

Related Commands

Command	Description
cache	Enters WebVPN Cache mode.
cache-compressed	Configures WebVPN cache compression.
disable	Disables caching.
expiry-time	Configures the expiration time for caching objects without revalidating them.
max-object-size	Defines the maximum size of an object to cache.
min-object-size	Defines the minimum sizze of an object to cache.

local-unit

To provide a name for this cluster member, use the **local-unit** command in cluster group configuration mode. To remove the name, use the **no** form of this command.

local-unit *unit_name*

no local-unit [*unit_name*]

Syntax Description

unit_name	Names this member of the cluster with a unique ASCII string from 1 to 38 characters.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Cluster group configuration	•	•	•	—	•

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

Each unit must have a unique name. A unit with a duplicated name will be not be allowed in the cluster.

Examples

The following example names this unit as unit1:

```
hostname(config)# cluster group cluster1
hostname(cfg-cluster)# local-unit unit1
```

Related Commands

Command	Description
clacp system-mac	When using spanned EtherChannels, the ASA uses cLACP to negotiate the EtherChannel with the neighbor switch.
cluster group	Names the cluster and enters cluster configuration mode.
cluster-interface	Specifies the cluster control link interface.
cluster interface-mode	Sets the cluster interface mode.
conn-rebalance	Enables connection rebalancing.

Command	Description
console-replicate	Enables console replication from slave units to the master unit.
enable (cluster group)	Enables clustering.
health-check	Enables the cluster health check feature, which includes unit health monitoring and interface health monitoring.
key	Sets an authentication key for control traffic on the cluster control link.
mtu cluster-interface	Specifies the maximum transmission unit for the cluster control link interface.
priority (cluster group)	Sets the priority of this unit for master unit elections.

log

When using the Modular Policy Framework, log packets that match a **match** command or class map by using the **log** command in match or class configuration mode. This log action is available in an inspection policy map (the **policy-map type inspect** command) for application traffic. To disable this action, use the **no** form of this command.

log

no log

Syntax Description

This command has no arguments or keywords.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Match and class configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

An inspection policy map consists of one or more **match** and **class** commands. The exact commands available for an inspection policy map depends on the application. After you enter the **match** or **class** command to identify application traffic (the **class** command refers to an existing **class-map type inspect** command that in turn includes **match** commands), you can enter the **log** command to log all packets that match the **match** command or **class** command.

When you enable application inspection using the **inspect** command in a Layer 3/4 policy map (the **policy-map** command), you can enable the inspection policy map that contains this action, for example, enter the **inspect http http_policy_map** command where http_policy_map is the name of the inspection policy map.

Examples

The following example sends a log when packets match the http-traffic class map.

```
hostname(config-cmap)# policy-map type inspect http http-map1
hostname(config-pmap)# class http-traffic
hostname(config-pmap-c)# log
```

Related Commands

Commands	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
policy-map type inspect	Defines special actions for application inspection.
show running-config policy-map	Display all current policy map configurations.

log-adj-changes (OSPFv2)

To configure the router to send a syslog message when an OSPF neighbor goes up or down, use the **log-adj-changes** command in router configuration mode. To turn off this function, use the **no** form of this command.

log-adj-changes [**detail**]

no log-adj-changes [**detail**]

Syntax Description

detail	(Optional) Sends a syslog message for each state change, not just when a neighbor goes up or down.

Defaults

This command is enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Router configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.01)	Multiple context mode is supported.

Usage Guidelines

The **log-adj-changes** command is enabled by default; it appears in the running configuration unless removed with the **no** form of the command.

Examples

The following example disables the sending of a syslog message when an OSPF neighbor goes up or down:

```
hostname(config)# router ospf 5
hostname(config-router)# no log-adj-changes
```

Related Commands

Command	Description
router ospf	Enters router configuration mode.
show ospf	Displays general information about the OSPF routing processes.

log-adjacency-changes (OSPFv3)

To configure the router to send a syslog message when an OSPFv3 neighbor goes up or down, use the **log-adjacency-changes** command in IPv6 router configuration mode. To turn off this function, use the **no** form of this command.

log-adjacency-changes [**detail**]

no log-adjacency-changes [**detail**]

Syntax Description

detail	(Optional) Sends a syslog message for each state change, not just when a neighbor goes up or down.

Defaults

This command is enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
IPv6 router configuration	•	—	•	•	—

Command History

Release	Modification
9.01)	We introduced this command.

Usage Guidelines

The **log-adjacency-changes** command is enabled by default; it appears in the running configuration unless removed with the **no** form of the command.

Examples

The following example disables the sending of a syslog message when an OSPFv3 neighbor goes up or down:

```
hostname(config)# ipv6 router ospf 5
hostname(config-router)# no log-adjacency-changes
```

Related Commands

Command	Description
ipv6 router ospf	Enters router configuration mode.
show ipv6 ospf	Displays general information about the OSPFv3 routing processes.

logging asdm through logout message Commands

logging asdm

To send syslog messages to the ASDM log buffer, use the **logging asdm** command in global configuration mode. To disable logging to the ASDM log buffer, use the **no** form of this command.

logging asdm [*logging_list* | *level*]

no logging asdm [*logging_list* | *level*]

Syntax Description

level	Sets the maximum severity level for syslog messages. For example, if you set the severity level to 3, then the ASA generates syslog messages for severity levels 3, 2, 1, and 0. You can specify either the number or the name, as follows: • **0** or **emergencies**—System is unusable. • **1** or **alerts**—Immediate action needed. • **2** or **critical**—Critical conditions. • **3** or **errors**—Error conditions. • **4** or **warnings**—Warning conditions. • **5** or **notifications**—Normal but significant conditions. • **6** or **informational**—Informational messages. • **7** or **debugging**—Debugging messages.
logging_list	Specifies the list that identifies the messages to send to the ASDM log buffer. For information about creating lists, see the **logging list** command.

Defaults

ASDM logging is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Before any messages are sent to the ASDM log buffer, you must enable logging using the **logging enable** command.

When the ASDM log buffer is full, the ASA deletes the oldest message to make room in the buffer for new messages. To control the number of syslog messages retained in the ASDM log buffer, use the **logging asdm-buffer-size** command.

The ASDM log buffer is a different buffer than the log buffer enabled by the **logging buffered** command.

Examples

The following example shows how to enable logging, send log buffer messages of severity levels 0, 1, and 2 to the ASDM, and how to set the ASDM log buffer size to 200 messages:

```
hostname(config)# logging enable
hostname(config)# logging asdm 2
hostname(config)# logging asdm-buffer-size 200
hostname(config)# show logging
Syslog logging: enabled
    Facility: 20
    Timestamp logging: disabled
    Standby logging: disabled
    Deny Conn when Queue Full: disabled
    Console logging: disabled
    Monitor logging: disabled
    Buffer logging: disabled
    Trap logging: disabled
    History logging: disabled
    Device ID: disabled
    Mail logging: disabled
    ASDM logging: level critical, 48 messages logged
```

Related Commands

Command	Description
clear logging asdm	Clears the ASDM log buffer of all messages that it contains.
logging asdm-buffer-size	Specifies the number of ASDM messages retained in the ASDM log buffer
logging enable	Enables logging.
logging list	Creates a reusable list of message selection criteria.
show logging	Displays the enabled logging options.
show running-config logging	Displays the logging configuration.

logging asdm-buffer-size

To specify the number of syslog messages retained in the ASDM log buffer, use the **logging asdm-buffer-size** command in global configuration mode. To reset the ASDM log buffer to its default size of 100 messages, use the **no** form of this command.

logging asdm-buffer-size *num_of_msgs*

no logging asdm-buffer-size *num_of_msgs*

Syntax Description

num_of_msgs	Specifies the number of syslog messages that the ASA retains in the ASDM log buffer.

Defaults

The default ASDM syslog buffer size is 100 messages.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

When the ASDM log buffer is full, the ASA deletes the oldest message to make room in the buffer for new messages. To control whether logging to the ASDM log buffer is enabled or to control the kind of syslog messages retained in the ASDM log buffer, use the **logging asdm** command.

The ASDM log buffer is a different buffer than the log buffer enabled by the **logging buffered** command.

Examples

The following example shows how to enable logging, sendmessages of severity levels 0, 1, and 2 to the ASDM log buffer, and how to set the ASDM log buffer size to 200 messages:

```
hostname(config)# logging enable
hostname(config)# logging asdm 2
hostname(config)# logging asdm-buffer-size 200
hostname(config)# show logging
Syslog logging: enabled
    Facility: 20
    Timestamp logging: disabled
    Standby logging: disabled
    Deny Conn when Queue Full: disabled
    Console logging: disabled
    Monitor logging: disabled
```

```
Buffer logging: disabled
Trap logging: disabled
History logging: disabled
Device ID: disabled
Mail logging: disabled
ASDM logging: level critical, 48 messages logged
```

Related Commands

Command	Description
clear logging asdm	Clears the ASDM log buffer of all messages that it contains.
logging asdm	Enables logging to the ASDM log buffer.
logging enable	Enables logging.
show logging	Displays the enabled logging options.
show running-config logging	Displays the currently running logging configuration.

logging buffered

To enable the ASA to send syslog messages to the log buffer, use the **logging buffered** command in global configuration mode. To disable logging to the log buffer, use the **no** form of this command.

logging buffered [*logging_list* | *level*]

no logging buffered [*logging_list* | *level*]

Syntax Description

level	Sets the maximum severity level for syslog messages. For example, if you set the severity level to 3, then the ASA generates syslog messages for severity levels 3, 2, 1, and 0. You can specify either the number or the name, as follows: • **0** or **emergencies**—System is unusable. • **1** or **alerts**—Immediate action needed. • **2** or **critical**—Critical conditions. • **3** or **errors**—Error conditions. • **4** or **warnings**—Warning conditions. • **5** or **notifications**—Normal but significant conditions. • **6** or **informational**—Informational messages. • **7** or **debugging**—Debugging messages.
logging_list	Specifies the list that identifies the messages to send to the log buffer. For information about creating lists, see the **logging list** command.

Defaults

The defaults are as follows:

- Logging to the buffer is disabled.
- The buffer size is 4 KB.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Before any messages are sent to the log buffer, you must enable logging using the **logging enable** command.

New messages append to the end of the buffer. When the buffer fills up, the ASA clears the buffer and continues adding messages to it. When the log buffer is full, the ASA deletes the oldest message to make room in the buffer for new messages. You can have buffer contents automatically saved each time the contents of the buffer have "wrapped," which means that all the messages since the last save have been replaced by new messages. For more information, see the **logging flash-bufferwrap** and **logging ftp-bufferwrap** commands.

At any time, you can save the contents of the buffer to flash memory. For more information, see the **logging savelog** command.

You can view syslog messages that have been sent to the buffer with the **show logging** command.

Examples

The following example configures logging to the buffer for severity level 0 and level 1 events:

```
hostname(config)# logging buffered alerts
hostname(config)#
```

The following example creates a list named" notif-list" with a maximum severity level of 7 and configures logging to the buffer for syslog messages identified by the "notif-list" list:

```
hostname(config)# logging list notif-list level 7
hostname(config)# logging buffered notif-list
hostname(config)#
```

Related Commands

Command	Description
clear logging buffer	Clears the log buffer of all syslog messages that it contains.
logging buffer-size	Specifies log buffer size.
logging enable	Enables logging.
logging list	Creates a reusable list of message selection criteria.
logging savelog	Saves the contents of the log buffer to flash memory.

logging buffer-size

To specify the size of the log buffer, use the **logging buffer-size** command in global configuration mode. To reset the log buffer to its default size of 4 KB of memory, use the **no** form of this command.

logging buffer-size *bytes*

no logging buffer-size *bytes*

Syntax Description

bytes	Sets the amount of memory used for the log buffer, in bytes. For example, if you specify 8192, the ASA uses 8 KB of memory for the log buffer.

Defaults

The default log buffer size is 4 KB of memory.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To see whether the ASA is using a log buffer of a size other than the default buffer size, use the **show running-config logging** command. If the **logging buffer-size** command is not shown, then the ASA uses a log buffer of 4 KB.

For more information about how the ASA uses the buffer, see the **logging buffered** command.

Examples

The following example enables logging, enables the logging buffer, and specifies that the ASA uses 16 KB of memory for the log buffer:

```
hostname(config)# logging enable
hostname(config)# logging buffered
hostname(config)# logging buffer-size 16384
hostname(config)#
```

Related Commands

Command	Description
clear logging buffer	Clears the log buffer of all syslog messages that it contains.
logging buffered	Enables logging to the log buffer.
logging enable	Enables logging.
logging flash-bufferwrap	Writes the log buffer to flash memory when the log buffer is full.
logging savelog	Saves the contents of the log buffer to flash memory.

logging class

To configure the maximum severity level per logging destination for a message class, use the **logging class** command in global configuration mode. To remove a message class severity level configuration, use the **no** form of this command.

logging class *class destination level* [*destination level . . .*]

no logging class *class*

Syntax Description

class	Specifies the message class whose maximum severity levels are configured per destination. For valid values of *class*, see the "Usage Guidelines" section.
destination	Specifies a logging destination for *class*. For the destination, the *level* determines the maximum severity level sent to *destination*. For valid values of *destination*, see the "Usage Guidelines" section that follows.
level	Sets the maximum severity level for syslog messages. For example, if you set the severity level to 3, then the ASA generates syslog messages for severity levels 3, 2, 1, and 0. You can specify either the number or the name, as follows: • **0** or **emergencies**—System is unusable. • **1** or **alerts**—Immediate action is needed. • **2** or **critical**—Critical conditions. • **3** or **errors**—Error conditions. • **4** or **warnings**—Warning conditions. • **5** or **notifications**—Normal but significant conditions. • **6** or **informational**—Informational messages. • **7** or **debugging**—Debugging messages.

Defaults

By default, the ASA does not apply severity levels on a logging destination and message class basis. Instead, each enabled logging destination receives messages for all classes at the severity level determined by the logging list or severity level specified when you enabled the logging destination.

Command Modes

The following table shows the modes in which you may enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.2(1)	This command was introduced.
8.0(2)	Added **eigrp** to valid class values.
8.2(1)	Added **dap** to valid class values.

Usage Guidelines

Valid values for *class* include the following:

- **auth**—User authentication.
- **bridge**—Transparent firewall.
- **ca**—PKI certificate authority.
- **config**—Command interface.
- **dap—**Dynamic Access Policies.
- **eap**—Extensible Authentication Protocol (EAP). Logs the following types of events to support Network Admission Control: EAP session state changes, EAP status query events, and a hexadecimal dump of EAP header and packet contents.
- **eapoudp**—Extensible Authentication Protocol (EAP) over UDP. Logs EAPoUDP events to support Network Admission Control, and generates a complete record of EAPoUDP header and packet contents.
- **eigrp**—EIGRP routing.
- **email**—Email proxy.
- **ha**—Failover.
- **ids**—Intrusion detection system.
- **ip**—IP stack.
- **ipaa—**IP address assignment
- **nac**—Network Admission Control. Logs the following types of events: initializations, exception list matches, ACS transactions, clientless authentications, default ACL applications, and revalidations.
- **np**—Network processor.
- **ospf**—OSPF routing.
- **rip**—RIP routing.
- **rm**—Resource Manager.
- **session**—User session.
- **snmp**—SNMP.
- **sys**—System.
- **vpn**—IKE and IPSec.
- **vpnc**—VPN client.
- **vpnfo**—VPN failover.
- **vpnlb**—VPN load balancing.

Valid logging destinations are as follows:

- **asdm**—To learn about this destination, see the **logging asdm** command.

- **buffered**—To learn about this destination, see the **logging buffered** command.
- **console**—To learn about this destination, see the **logging console** command.
- **history**—To learn about this destination, see the **logging history** command.
- **mail**—To learn about this destination, see the **logging mail** command.
- **monitor**—To learn about this destination, see the **logging monitor** command.
- **trap**—To learn about this destination, see the **logging trap** command.

Examples

The following example specifies that, for failover-related messages, the maximum severity level for the ASDM log buffer is 2 and the maximum severity level for the syslog buffer is 7:

```
hostname(config)# logging class ha asdm 2 buffered 7
```

Related Commands

Command	Description
logging enable	Enables logging.
show logging	Displays the enabled logging options.
show running-config logging	Displays the logging-related portion of the running configuration.

logging console

To enable the ASA to display syslog messages in console sessions, use the **logging console** command in global configuration mode. To disable the display of syslog messages in console sessions, use the **no** form of this command.

logging console [*logging_list* | *level*]

no logging console

Note We recommend that you do not use this command, because it may cause many syslog messages to be dropped due to buffer overflow. For more information, see the "Usage Guidelines" section.

Syntax Description

level	Sets the maximum severity level for syslog messages. For example, if you set the severity level to 3, then the ASA generates syslog messages for severity levels 3, 2, 1, and 0. You can specify either the number or the name, as follows: • **0** or **emergencies**—System is unusable. • **1** or **alerts**—Immediate action needed. • **2** or **critical**—Critical conditions. • **3** or **errors**—Error conditions. • **4** or **warnings**—Warning conditions. • **5** or **notifications**—Normal but significant conditions. • **6** or **informational**—Informational messages. • **7** or **debugging**—Debugging messages.
logging_list	Specifies the list that identifies the messages to send to the console session. For information about creating lists, see the **logging list** command.

Defaults

The ASA does not display syslog messages in console sessions by default.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Before any messages are sent to the console, you must enable logging using the **logging enable** command.

Caution Using the **logging console** command could significantly degrade system performance. Instead, use the **logging buffered** command to start logging and the **show logging** command to view the messages. To make viewing the most current messages easier, use the **clear logging buffer** command to clear the buffer.

Examples

The following example shows how to enable syslog messages of severity levels 0, 1, 2, and 3 to appear in console sessions:

```
hostname(config)# logging enable
hostname(config)# logging console errors
hostname(config)#
```

Related Commands

Command	Description
logging enable	Enables logging.
logging list	Creates a reusable list of message selection criteria.
show logging	Displays the enabled logging options.
show running-config logging	Displays the logging-related portion of the running configuration.

logging debug-trace

To redirect debugging messages to logs as syslog message 711001 issued at severity level 7, use the **logging debug-trace** command in global configuration mode. To stop sending debugging messages to logs, use the **no** form of this command.

logging debug-trace

no logging debug-trace

Syntax Description

This command has no arguments or keywords.

Defaults

By default, the ASA does not include debugging output in syslog messages.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Debugging messages are generated as severity level 7 messages. They appear in logs with the syslog message number 711001, but do not appear in any monitoring session.

Examples

The following example shows how to enable logging, send log messages to the system log buffer, redirect debugging output to logs, and turn on debugging of disk activity.

```
hostname(config)# logging enable
hostname(config)# logging buffered
hostname(config)# logging debug-trace
hostname(config)# debug disk filesystem
```

The following is sample output of a debugging message that could appear in the logs:

```
%ASA-7-711001: IFS: Read: fd 3, bytes 4096
```

Related Commands

Command	Description
logging enable	Enables logging.
show logging	Displays the enabled logging options.
show running-config logging	Displays the logging-related portion of the running configuration.

logging device-id

To configure the ASA to include a device ID in non-EMBLEM-format syslog messages, use the **logging device-id** command in global configuration mode. To disable the use of a device ID, use the **no** form of this command.

logging device-id {**cluster-id** | **context-name** | **hostname** | **ipaddress** *interface_name* [**system**] | **string** *text*}

no logging device-id {**cluster-id** | **context-name** | **hostname** | **ipaddress** *interface_name* [**system**] | **string** *text*}

Syntax Description

cluster-id	Specifies the unique name of an individual ASA unit in the cluster as the device ID.
hostname	Specifies the hostname of the ASA as the device ID.
ipaddress *interface_name*	Specifies the device ID or the IP address of the interface in *interface_name*. If you use the **ipaddress** keyword, syslog messages sent to an external server include the IP address of the interface specified, regardless of which interface the ASA uses to send the log data to the external server.
string *text*	Specifies the characters included in *text* as the device ID, which can be up to 16 characters long. You cannot use white space characters or any of the following characters: • &—ampersand • '—single quote • "—double quote • <—less than • >—greater than • ?—question mark
system	(Optional) In the cluster environment, dictates that the device ID becomes the system IP address on the interface.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	The **cluster-id** and **system** keywords have been added.

Usage Guidelines

If you use the **ipaddress** keyword, the device ID becomes the specified ASA interface IP address, regardless of the interface from which the message is sent. This keyword provides a single, consistent device ID for all messages that are sent from the device. If you use the **system** keyword, the specified ASA uses the system IP address instead of the local IP address of the unit in a cluster. The **cluster-id** and **system** keywords apply to the ASA 5580 and 5585-X only.

Examples

The following example shows how to configure a host named “secappl-1”:

```
hostname(config)# logging device-id hostname
hostname(config)# show logging
Syslog logging: disabled
Facility: 20
Timestamp logging: disabled
Standby logging: disabled
Console logging: disabled
Monitor logging: disabled
Buffer logging: level informational, 991 messages logged
Trap logging: disabled
History logging: disabled
Device ID: hostname "secappl-1"
```

The hostname appears at the beginning of syslog messages, as shown in the following message:

```
secappl-1 %ASA-5-111008: User 'enable_15' executed the 'logging buffer-size 4096' command.
```

Related Commands

Command	Description
logging enable	Enables logging.
show logging	Displays the enabled logging options.
show running-config logging	Displays the logging-related portion of the running configuration.

logging emblem

To use the EMBLEM format for syslog messages sent to destinations other than a syslog server, use the **logging emblem** command in global configuration mode. To disable the use of EMBLEM format, use the **no** form of this command.

logging emblem

no logging emblem

Syntax Description

This command has no arguments or keywords.

Defaults

By default, the ASA does not use EMBLEM format for syslog messages.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was changed to be independent of the **logging host** command.

Usage Guidelines

The **logging emblem** command lets you to enable EMBLEM-format logging for all logging destinations other than syslog servers. If you also enable the **logging timestamp** keyword, the messages with a time stamp are sent.

To enable EMBLEM-format logging for syslog servers, use the **format emblem** option with the **logging host** command.

Examples

The following example shows how to enable logging and enable the use of EMBLEM-format for logging to all logging destinations except syslog servers:

```
hostname(config)# logging enable
hostname(config)# logging emblem
hostname(config)#
```

Related Commands

Command	Description
logging enable	Enables logging.

Command	Description
show logging	Displays the enabled logging options.
show running-config logging	Displays the logging-related portion of the running configuration.

logging enable

To enable logging for all configured output locations, use the **logging enable** command in global configuration mode. To disable logging, use the **no** form of this command.

logging enable

no logging enable

Syntax Description

This command has no arguments or keywords.

Defaults

Logging is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was changed from the **logging on** command.

Usage Guidelines

The **logging enable** command allows you to enable or disable sending syslog messages to any of the supported logging destinations. You can stop all logging with the **no logging enable** command.

You can enable logging to individual logging destinations with the following commands:

- **logging asdm**
- **logging buffered**
- **logging console**
- **logging history**
- **logging mail**
- **logging monitor**
- **logging trap**

Examples

The following example shows how to enable logging. The output of the **show logging** command illustrates how each possible logging destination must be enabled separately:

```
hostname(config)# logging enable
hostname(config)# show logging
Syslog logging: enabled
```

```
Facility: 20
Timestamp logging: disabled
Standby logging: disabled
Deny Conn when Queue Full: disabled
Console logging: disabled
Monitor logging: disabled
Buffer logging: disabled
Trap logging: disabled
History logging: disabled
Device ID: disabled
Mail logging: disabled
ASDM logging: disabled
```

Related Commands

Command	Description
show logging	Displays the enabled logging options.
show running-config logging	Displays the logging-related portion of the running configuration.

logging facility

To specify the logging facility used for messages sent to syslog servers, use the **logging facility** command in global configuration mode. To reset the logging facility to its default of 20, use the **no** form of this command.

logging facility *facility*

no logging facility

Syntax Description

facility	Specifies the logging facility; valid values are 16 through 23.

Defaults

The default facility is 20 (LOCAL4).

Command Modes

The following table shows the modes in which you can enter the command, with the exceptions noted in the Syntax Description section.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Syslog servers file messages based on the *facility* number in the message. There are eight possible facilities: 16 (LOCAL0) through 23 (LOCAL7).

Examples

The following example shows how to specify that the ASA indicate the logging facility as 16 in syslog messages. The output of the **show logging** command includes the facility being used by the ASA:

```
hostname(config)# logging facility 16
hostname(config)# show logging
Syslog logging: enabled
    Facility: 16
    Timestamp logging: disabled
    Standby logging: disabled
    Deny Conn when Queue Full: disabled
    Console logging: disabled
    Monitor logging: disabled
    Buffer logging: disabled
    Trap logging: level errors, facility 16, 3607 messages logged
        Logging to infrastructure 10.1.2.3
    History logging: disabled
    Device ID: 'inside' interface IP address "10.1.1.1"
```

```
Mail logging: disabled
ASDM logging: disabled
```

Related Commands

Command	Description
logging enable	Enables logging.
logging host	Defines a syslog server.
logging trap	Enables logging to syslog servers.
show logging	Displays the enabled logging options.
show running-config logging	Displays the logging-related portion of the running configuration.

logging flash-bufferwrap

To enable the ASA to write the log buffer to flash memory every time the buffer is full of messages that have never been saved, use the **logging flash-bufferwrap** command in global configuration mode. To disable writing of the log buffer to flash memory, use the **no** form of this command.

logging flash-bufferwrap

no logging flash-bufferwrap

Syntax Description

This command has no arguments or keywords.

Defaults

The defaults are as follows:

- Logging to the buffer is disabled.
- Writing the log buffer to flash memory is disabled.
- The buffer size is 4 KB.
- Minimum free flash memory is 3 MB.
- Maximum flash memory allocation for buffer logging is 1 MB.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

For the ASA to write the log buffer to flash memory, you must enable logging to the buffer; otherwise, the log buffer never has data to be written to flash memory. To enable logging to the buffer, use the **logging buffered** command.

While the ASA writes log buffer contents to flash memory, it continues storing any new event messages to the log buffer.

The ASA creates log files with names that use a default time-stamp format, as follows:

`LOG-`*`YYYY-MM-DD-HHMMSS`*`.TXT`

where *YYYY* is the year, *MM* is the month, *DD* is the day of the month, and *HHMMSS* is the time in hours, minutes, and seconds.

The availability of flash memory affects how the ASA saves syslog messages using the **logging flash-bufferwrap** command. For more information, see the **logging flash-maximum-allocation** and the **logging flash-minimum-free** commands.

Examples

The following example shows how to enable logging, enable the log buffer, and enable the ASA to write the log buffer to flash memory:

```
hostname(config)# logging enable
hostname(config)# logging buffered
hostname(config)# logging flash-bufferwrap
hostname(config)#
```

Related Commands

Command	Description
clear logging buffer	Clears the log buffer of all syslog messages that it contains.
copy	Copies a file from one location to another, including to a TFTP or FTP server.
delete	Deletes a file from the disk partition, such as saved log files.
logging buffered	Enables logging to the log buffer.
logging buffer-size	Specifies log buffer size.

logging flash-maximum-allocation

To specify the maximum amount of flash memory that the ASA uses to store log data, use the **logging flash-maximum-allocation** command in global configuration mode. To reset the maximum amount of flash memory used for this purpose to its default size of 1 MB of flash memory, use the **no** form of this command.

logging flash-maximum-allocation *kbytes*

no logging flash-maximum-allocation *kbytes*

Syntax Description

kbytes	The largest amount of flash memory, in kilobytes, that the ASA can use to save log buffer data.

Defaults

The default maximum flash memory allocation for log data is 1 MB.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command determines how much flash memory is available for the **logging savelog** and **logging flash-bufferwrap** commands.

If a log file to be saved by **logging savelog** or **logging flash-bufferwrap** causes flash memory use for log files to exceed the maximum amount specified by the **logging flash-maximum-allocation** command, the ASA deletes the oldest log files to free sufficient memory for the new log file. If there are no files to delete or if, after all old files are deleted, free memory is too small for the new log file, the ASA fails to save the new log file.

To see whether the ASA has a maximum flash memory allocation of a size different than the default size, use the **show running-config logging** command. If the **logging flash-maximum-allocation** command is not shown, then the ASA uses a maximum of 1 MB for saved log buffer data. The memory allocated is used for both the **logging savelog** and **logging flash-bufferwrap** commands.

For more information about how the ASA uses the log buffer, see the **logging buffered** command.

Examples

The following example shows how to enable logging, enable the log buffer, enable the ASA to write the log buffer to flash memory, with the maximum amount of flash memory used for writing log files set to approximately 1.2 MB of memory:

```
hostname(config)# logging enable
hostname(config)# logging buffered
hostname(config)# logging flash-bufferwrap
hostname(config)# logging flash-maximum-allocation 1200
hostname(config)#
```

Related Commands

Command	Description
clear logging buffer	Clears the log buffer of all syslog messages it contains.
logging buffered	Enables logging to the log buffer.
logging enable	Enables logging.
logging flash-bufferwrap	Writes the log buffer to flash memory when the log buffer is full.
logging flash-minimum-free	Specifies the minimum amount of flash memory that must be available for the ASA to permit writing of the log buffer to flash memory.

logging flash-minimum-free

To specify the minimum amount of free flash memory that must exist before the ASA saves a new log file, use the **logging flash-minimum-free** command in global configuration mode. To reset the minimum required amount of free flash memory to its default size of 3 MB, use the **no** form of this command.

logging flash-minimum-free *kbytes*

no logging flash-minimum-free *kbytes*

Syntax Description

kbytes	The minimum amount of flash memory, in kilobytes, that must be available before the ASA saves a new log file.

Defaults

The default minimum free flash memory is 3 MB.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The logging flash-minimum-free command specifies how much flash memory the **logging savelog** and **logging flash-bufferwrap** commands must preserve at all times.

If a log file to be saved by **logging savelog** or **logging flash-bufferwrap** would cause the amount of free flash memory to fall below the limit specified by the **logging flash-minimum-free** command, the ASA deletes the oldest log files to ensure that the minimum amount of memory remains free after saving the new log file. If there are no files to delete or if, after all old files are deleted, free memory would still be below the limit, the ASA fails to save the new log file.

Examples

The following example shows how to enable logging, enable the log buffer, enable the ASA to write the log buffer to flash memory, and specifies that the minimum amount of free flash memory must be 4000 KB:

```
hostname(config)# logging enable
hostname(config)# logging buffered
hostname(config)# logging flash-bufferwrap
hostname(config)# logging flash-minimum-free 4000
hostname(config)#
```

Related Commands

Command	Description
clear logging buffer	Clears the log buffer of all syslog messages that it contains.
logging buffered	Enables logging to the log buffer.
logging enable	Enables logging.
logging flash-bufferwrap	Writes the log buffer to flash memory when the log buffer is full.
logging flash-maximum-allocation	Specifies the maximum amount of flash memory that can be used for writing log buffer contents.

logging flow-export-syslogs enable | disable

To enable all of the syslog messages that NetFlow captures, use the **logging flow-export-syslogs enable** command in global configuration mode. To disable all of the syslog messages that NetFlow captures, use the **logging flow-export-syslogs disable** command in global configuration mode.

logging flow-export-syslogs {enable | disable}

Syntax Description

This command has no arguments or keywords.

Defaults

By default, all syslogs that are captured by NetFlow are enabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.1(1)	This command was introduced.

Usage Guidelines

If the security appliance is configured to export NetFlow data, to improve performance, we recommend that you disable redundant syslog messages (those also captured by NetFlow) by entering the **logging flow-export-syslogs disable** command. The syslog messages that will be disabled are as follows:

Syslog Message	Description
106015	A TCP flow was denied because the first packet was not a SYN packet.
106023	A flow that is denied by an ingress ACL or an egress ACL that is attached to an interface through the **access-group** command.
106100	A flow that is permitted or denied by an ACL.
302013 and 302014	A TCP connection and deletion.
302015 and 302016	A UDP connection and deletion.
302017 and 302018	A GRE connection and deletion.
302020 and 302021	An ICMP connection and deletion.
313001	An ICMP packet to the security appliance was denied.
313008	An ICMPv6 packet to the security appliance was denied.
710003	An attempt to connect to the security appliance was denied.

Note Although this is a configuration mode command, it is not stored in the configuration. Only the **no logging message xxxxxx** commands are stored in the configuration.

Examples

The following example shows how to disable redundant syslog messages that NetFlow captures and the sample output that appears:

```
hostname(config)# logging flow-export-syslogs disable

hostname(config)# show running-config logging

no logging message xxxxx1
no logging message xxxxx2
```

where the *xxxxx1* and *xxxxx2* are syslog messages that are redundant because the same information has been captured through NetFlow. This command is like a command alias, and will convert to a batch of **no logging message xxxxxx** commands. After you have disabled the syslog messages, you can enable them individually with the **logging message xxxxxx** command, where *xxxxxx* is the specific syslog message number.

Related Commands

Commands	Description
flow-export destination *interface-name ipv4-address* | *hostname udp-port*	Specifies the IP address or hostname of the NetFlow collector, and the UDP port on which the NetFlow collector is listening.
flow-export template timeout-rate *minutes*	Controls the interval at which the template information is sent to the NetFlow collector.
show flow-export counters	Displays a set of runtime counters for NetFlow.

logging from-address

To specify the sender e-mail address for syslog messages sent by the ASA, use the **logging from-address** command in global configuration mode. All sent syslog messages appear to come from the address you specify. To remove the sender e-mail address, use the **no** form of this command.

logging from-address *from-email-address*

no logging from-address *from-email-address*

Syntax Description

from-email-address	Source e-mail address, that is, the e-mail address that syslog messages appear to come from (for example, cdb@example.com).

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Sending syslog messages by e-mail is enabled by the **logging mail** command.

The address specified with this command need not correspond to an existing e-mail account.

Examples

To enable logging and set up the ASA to send syslog messages by e-mail, use the following criteria:

- Send messages that are critical, alerts, or emergencies.
- Send messages using ciscosecurityappliance@example.com as the sender address.
- Send messages to admin@example.com.
- Send messages using SMTP, the primary servers pri-smtp-host, and secondary server sec-smtp-host.

Enter the following commands:

```
hostname(config)# logging enable
hostname(config)# logging mail critical
hostname(config)# logging from-address ciscosecurityappliance@example.com
hostname(config)# logging recipient-address admin@example.com
hostname(config)# smtp-server pri-smtp-host sec-smtp-host
```

Related Commands

Command	Description
logging enable	Enables logging.
logging mail	Enables the ASA to send syslog messages by e-mail and determines which messages are sent by e-mail.
logging recipient-address	Specifies the e-mail address to which syslog messages are sent.
smtp-server	Configures an SMTP server.
show logging	Displays the enabled logging options.

logging ftp-bufferwrap

To enable the ASA to send the log buffer to an FTP server every time the buffer is full of messages that have never been saved, use the **logging ftp-bufferwrap** command in global configuration mode. To disable sending the log buffer to an FTP server, use the **no** form of this command.

logging ftp-bufferwrap

no logging ftp-bufferwrap

Syntax Description

This command has no arguments or keywords.

Defaults

The defaults are as follows:

- Logging to the buffer is disabled.
- Sending the log buffer to an FTP server is disabled.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

When you enable **logging ftp-bufferwrap**, the ASA sends log buffer data to the FTP server that you specify with the **logging ftp-server** command. While the ASA sends log data to the FTP server, it continues storing any new event messages to the log buffer.

For the ASA to send log buffer contents to an FTP server, you must enable logging to the buffer; otherwise, the log buffer never has data to be written to flash memory. To enable logging to the buffer, use the **logging buffered** command.

The ASA creates log files with names that use a default time-stamp format, as follows:

`LOG-`*`YYYY-MM-DD-HHMMSS`*`.TXT`

where *YYYY* is the year, *MM* is the month, *DD* is the day of the month, and *HHMMSS* is the time in hours, minutes, and seconds.

Examples

The following example shows how to enable logging, enable the log buffer, specify an FTP server, and enable the ASA to write the log buffer to an FTP server. The example specifies an FTP server whose hostname is logserver-352. The server can be accessed with the username, logsupervisor and password, 1luvMy10gs. Log files are to be stored in the /syslogs directory:

```
hostname(config)# logging enable
hostname(config)# logging buffered
hostname(config)# logging ftp-server logserver-352 /syslogs logsupervisor 1luvMy10gs
hostname(config)# logging ftp-bufferwrap
hostname(config)#
```

Related Commands

Command	Description
clear logging buffer	Clears the log buffer of all syslog messages that it contains.
logging buffered	Enables logging to the log buffer.
logging buffer-size	Specifies log buffer size.
logging enable	Enables logging.
logging ftp-server	Specifies FTP server parameters for use with the **logging ftp-bufferwrap** command.

logging ftp-server

To specify details about the FTP server that the ASA sends log buffer data to when **logging ftp-bufferwrap** is enabled, use the **logging ftp-server** command in global configuration mode. To remove all details about an FTP server, use the **no** form of this command.

logging ftp-server *ftp_server path username* [*0* | *8*] *password*

no logging ftp-server *ftp_server path username* [*0* | *8*] *password*

Syntax Description

0	(Optional) Specifies that an unencrypted (clear text) user password will follow.
8	(Optional) Specifies that an encrypted user password will follow.
ftp-server	External FTP server IP address or hostname. **Note** If you specify a hostname, be sure that DNS is operating correctly on your network.
password	The password for the username specified, which can be up to 64 characters long.
path	Directory path on the FTP server where the log buffer data is to be saved. This path is relative to the FTP root directory. For example: `/security_appliances/syslogs/appliance107`
username	A username that is valid for logging in to the FTP server.

Defaults

No FTP server is specified by default.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.3(1)	Support for password encryption has been added.

Usage Guidelines

You can only specify one FTP server. If a logging FTP server is already specified, using the **logging ftp-server** command replaces this FTP server configuration with the new one that you enter.

The ASA does not verify the FTP server information that you specify. If you misconfigure any of the details, the ASA fails to send log buffer data to the FTP server.

During bootup or upgrade of the ASA, single-digit passwords and passwords startingwith a digit followed by a whitespace are not supported. For example, 0 pass and 1 are invalid passwords.

Examples

The following example shows how to enable logging, enable the log buffer, specify an FTP server, and enable the ASA to write the log buffer to an FTP server. This example specifies an FTP server whose hostname is logserver. The server can be accessed with the username, user1 and password, pass1. Log files are to be stored in the /path1 directory:

```
hostname(config)# logging enable
hostname(config)# logging buffered
hostname(config)# logging ftp-server logserver /path1 user1 pass1
hostname(config)# logging ftp-bufferwrap
```

The following example shows how to enter an encrypted password:

```
hostname(config)# logging ftp-server logserver /path1 user1 8 JPAGWzIIFVlheXv2I9nglfytOzHU
```

The following example shows how to enter an unencrypted (clear text) password:

```
hostname(config)# logging ftp-server logserver /path1 user1 0 pass1
```

Related Commands

Command	Description
clear logging buffer	Clears the log buffer of all syslog messages that it contains.
logging buffered	Enables logging to the log buffer.
logging buffer-size	Specifies log buffer size.
logging enable	Enables logging.
logging ftp-bufferwrap	Sends the log buffer to an FTP server when the log buffer is full.

logging history

To enable SNMP logging and specify which messages are to be sent to SNMP servers, use the **logging history** command in global configuration mode. To disable SNMP logging, use the **no** form of this command.

logging history [*logging_list* | *level*]

no logging history

Syntax Description

level	Sets the maximum severity level for syslog messages. For example, if you set the severity level to 3, then the ASA generates syslog messages for severity levels 3, 2, 1, and 0. You can specify either the number or the name, as follows: • **0** or **emergencies**—System is unusable. • **1** or **alerts**—Immediate action needed. • **2** or **critical**—Critical conditions. • **3** or **errors**—Error conditions. • **4** or **warnings**—Warning conditions. • **5** or **notifications**—Normal but significant conditions. • **6** or **informational**—Informational messages. • **7** or **debugging**—Debugging messages.
logging_list	Specifies the list that identifies the messages to send to the SNMP server. For information about creating lists, see the **logging list** command.

Defaults

The ASA does not log to SNMP servers by default.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **logging history** command allows you to enable logging to an SNMP server and to set the SNMP message level or event list.

Examples

The following example shows how to enable SNMP logging and specify that messages of severity levels 0, 1, 2, and 3 are sent to the SNMP server configured:

```
hostname(config)# logging enable
hostname(config)# snmp-server host infrastructure 10.2.3.7 trap community gam327
hostname(config)# snmp-server enable traps syslog
hostname(config)# logging history errors
hostname(config)#
```

Related Commands

Command	Description
logging enable	Enables logging.
logging list	Creates a reusable list of message selection criteria.
show logging	Displays the enabled logging options.
show running-config logging	Displays the logging-related portion of the running configuration.
snmp-server	Specifies SNMP server details.

logging host

To define a syslog server, use the **logging host** command in global configuration mode. To remove a syslog server definition, use the **no** form of this command.

logging host *interface_name syslog_ip* [**tcp/***port* | **udp/***port*] [**format emblem**] [**secure**]

no logging host *interface_name syslog_ip* [**tcp/***port* | **udp/***port*] [**format emblem**] [**secure**]

Syntax Description

format emblem	(Optional) Enables EMBLEM format logging for the syslog server.
interface_name	Specifies the interface on which the syslog server resides.
port	Indicates the port that the syslog server listens to for messages. Valid port values are 1025 through 65535 for either protocol. If you enter zero as a port number, or use an invalid character or symbol, an error occurs.
secure	(Optional) Specifies that the connection to the remote logging host should use SSL/TLS. This option is valid only if the protocol selected is TCP. **Note** A secure logging connection can only be established with an SSL/TLS-capable syslog server. If an SSL/TLS connection cannot be established, all new connections will be denied. You may change this default behavior by entering the **logging permit-hostdown** command.
syslog_ip	Specifies the IP address of the syslog server.
tcp	Specifies that the ASA should use TCP to send messages to the syslog server.
udp	Specifies that the ASA should use UDP to send messages to the syslog server.

Defaults

The default protocol is UDP.

The default setting for the **format emblem** option is false.

The default setting for the **secure** option is false.

The default port numbers are as follows:

- UDP—514
- TCP —1470

Command Modes

The following table shows the modes in which you can enter the command.

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0	This command was introduced.
8.0(2)	The **secure** keyword was added.
8.4(1)	Connection blocking can be enabled and disabled.

Usage Guidelines

The **logging host** *syslog_ip* **format emblem** command allows you to enable EMBLEM-format logging for each syslog server. EMBLEM-format logging is available for UDP syslog messages only. If you enable EMBLEM-format logging for a particular syslog server, then the messages are sent to that server. If you use the **logging timestamp** command, the messages with a time stamp are also sent.

You can use multiple **logging host** commands to specify additional servers that would all receive the syslog messages. However, you can only specify a server to receive either UDP or TCP syslog messages, not both.

The default setting for connection blocking is on when the **logging host** command has been configured to use TCP to send messages to a syslog server. If a TCP-based syslog server is configured, you can disable connection blocking with the **logging permit-hostdown** command.

Note When the **tcp** option is used in the **logging host** command, the ASA will drop connections across the firewall if the syslog server is unreachable.

You can display only the *port* and *protocol* values that you previously entered by using the **show running-config logging** command and finding the command in the listing—TCP is listed as 6, and UDP is listed as 17. TCP ports work only with the syslog server. The *port* must be the same port on which the syslog server listens.

Note An error message occurs if you try to use the **logging host** command and the **secure** keyword with UDP.

Sending syslogs over TCP is not supported on a standby ASA.

Examples

The following example shows how to send syslog messages of severity levels 0, 1, 2, and 3 to a syslog server on the inside interface that uses the default protocol and port number:

```
hostname(config)# logging enable
hostname(config)# logging host inside 10.2.2.3
hostname(config)# logging trap errors
hostname(config)#
```

Related Commands

Command	Description
logging enable	Enables logging.
logging trap	Enables logging to syslog servers.
show logging	Displays the enabled logging options.
show running-config logging	Displays the logging-related portion of the running configuration.

logging list

To create a logging list to use in other commands to specify messages by various criteria (logging level, event class, and message IDs), use the **logging list** command in global configuration mode. To remove the list, use the **no** form of this command.

logging list *name* {**level** *level* [**class** *event_class*] | **message** *start_id*[**-***end_id*]}

no logging list *name*

Syntax Description

class *event_class*	(Optional) Sets the class of events for syslog messages. For the level specified, only syslog messages of the class specified are identified by the command. See the "Usage Guidelines" section for a list of classes.
level *level*	Sets the maximum severity level for syslog messages. For example, if you set the severity level to 3, then the ASA generates syslog messages for severity levels 3, 2, 1, and 0. You can specify either the number or the name, as follows: • **0** or **emergencies**—System is unusable. • **1** or **alerts**—Immediate action needed. • **2** or **critical**—Critical conditions. • **3** or **errors**—Error conditions. • **4** or **warnings**—Warning conditions. • **5** or **notifications**—Normal but significant conditions. • **6** or **informational**—Informational messages. • **7** or **debugging**—Debugging messages.
message *start_id*[**-***end_id*]	Specified a message ID or range of IDs. To look up the default level of a message, use the **show logging** command or see the syslog messages guide.
name	Sets the logging list name.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

Logging commands that can use lists are the following:

- **logging asdm**
- **logging buffered**
- **logging console**
- **logging history**
- **logging mail**
- **logging monitor**
- **logging trap**

Possible values for the *event_class* include the following:

- **auth**—User authentication.
- **bridge**—Transparent firewall.
- **ca**—PKI certificate authority.
- **config**—Command interface.
- **eap**—Extensible Authentication Protocol (EAP). Logs the following types of events to support Network Admission Control: EAP session state changes, EAP status query events, and a hexadecimal dump of EAP header and packet contents.
- **eapoudp**—Extensible Authentication Protocol (EAP) over UDP. Logs EAPoUDP events to support Network Admission Control, and generates a complete record of EAPoUDP header and packet contents.
- **email**—Email proxy.
- **ha**—Failover.
- **ids**—Intrusion detection system.
- **ip**—IP stack.
- **nac**—Network Admission Control. Logs the following types of events: initializations, exception list matches, ACS transactions, clientless authentications, default ACL applications, and revalidations.
- **np**—Network processor.
- **ospf**—OSPF routing.
- **rip**—RIP routing.
- **session**—User session.
- **snmp**—SNMP.
- **sys**—System.
- **vpn**—IKE and IPSec.
- **vpnc**—VPN client.
- **vpnfo**—VPN failover.
- **vpnlb**—VPN load balancing.

Examples

The following example shows how to use the logging list command:

```
hostname(config)# logging list my-list 100100-100110
hostname(config)# logging list my-list level critical
```

```
hostname(config)# logging list my-list level warning class vpn
hostname(config)# logging buffered my-list
```

The preceding example states that syslog messages that match the criteria specified will be sent to the logging buffer. The criteria specified in this example are:

- Syslog message IDs that fall in the range of 100100 to 100110
- All syslog messages with critical level or higher (emergency, alert, or critical)
- All VPN class syslog messages with warning level or higher (emergency, alert, critical, error, or warning)

If a syslog message satisfies any one of these conditions, it is logged to the buffer.

Note When you design list criteria, the criteria can specify overlapping sets of messages. Syslog messages matching more than one set of criteria are logged normally.

Related Commands

Command	Description
logging enable	Enables logging.
show logging	Displays the enabled logging options.
show running-config logging	Displays the logging-related portion of the running configuration.

logging mail

To enable the ASA to send syslog messages by e-mail and to determine which messages are sent by e-mail, use the **logging mail** command in global configuration mode. To disable e-mailing of syslog messages, use the **no** form of this command.

logging mail [*logging_list* | *level*]

no logging mail [*logging_list* | *level*]

Syntax Description

level	Sets the maximum severity level for syslog messages. For example, if you set the severity level to 3, then the ASA generates syslog messages for severity levels 3, 2, 1, and 0. You can specify either the number or the name, as follows: • **0** or **emergencies**—System is unusable. • **1** or **alerts**—Immediate action needed. • **2** or **critical**—Critical conditions. • **3** or **errors**—Error conditions. • **4** or **warnings**—Warning conditions. • **5** or **notifications**—Normal but significant conditions. • **6** or **informational**—Informational messages. • **7** or **debugging**—Debugging messages.
logging_list	Specifies the list that identifies the messages to send to the e-mail recipient. For information about creating lists, see the **logging list** command.

Defaults

Logging to e-mail is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

E-mailed syslog messages appear in the subject line of the e-mails sent.

Examples

To set up the ASA to send syslog messages by e-mail, use the following criteria:

- Send messages that are critical, alerts, or emergencies.
- Send messages using ciscosecurityappliance@example.com as the sender address.
- Send messages to admin@example.com.
- Send messages using SMTP, the primary servers pri-smtp-host, and secondary server sec-smtp-host.

Enter the following commands:

```
hostname(config)# logging mail critical
hostname(config)# logging from-address ciscosecurityappliance@example.com
hostname(config)# logging recipient-address admin@example.com
hostname(config)# smtp-server pri-smtp-host sec-smtp-host
```

Related Commands

Command	Description
logging enable	Enables logging.
logging from-address	Specifies the e-mail address from which e-mailed syslog messages appear to come.
logging list	Creates a reusable list of message selection criteria.
logging recipient-address	Specifies the e-mail address to which e-mailed syslog messages are sent.
smtp-server	Configures an SMTP server.

logging message

To specify the logging level of a syslog message, use the **logging message** command with the **level** keyword in global configuration mode. To reset the logging level of a message to its default level, use the **no** form of this command.

logging message *syslog_id* **level** *level*

no logging message *syslog_id* **level** *level*

logging message *syslog_id*

no logging message *syslog_id*

Syntax Description

level *level*	Sets the maximum severity level for syslog messages. For example, if you set the severity level to 3, then the ASA generates syslog messages for severity levels 3, 2, 1, and 0. You can specify either the number or the name, as follows: • **0** or **emergencies**—System is unusable. • **1** or **alerts**—Immediate action needed. • **2** or **critical**—Critical conditions. • **3** or **errors**—Error conditions. • **4** or **warnings**—Warning conditions. • **5** or **notifications**—Normal but significant conditions. • **6** or **informational**—Informational messages. • **7** or **debugging**—Debugging messages.
syslog_id	The ID of the syslog message that you want to enable or disable or whose severity level you want to modify. To look up the default level of a message, use the **show logging** command or see the syslog messages guide.

Defaults

By default, all syslog messages are enabled and the severity levels of all messages are set to their default levels.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You can use the **logging message** command for two purposes:

- To control whether a message is enabled or disabled.
- To control the severity level of a message.

You can use the **show logging** command to determine the level currently assigned to a message and whether the message is enabled.

To prevent the ASA from generating a particular syslog message, use the **no** form of the **logging message** command (without the **level** keyword) in global configuration mode. To let the ASA generate a particular syslog message, use the **logging message** command (without the **level** keyword). These two versions of the **logging message** command can be used in parallel.

Examples

The series of commands in the following example show the use of the **logging message** command to control both whether a message is enabled and the severity level of the message:

```
hostname(config)# show logging message 403503
syslog 403503: default-level errors (enabled)

hostname(config)# logging message 403503 level 1
hostname(config)# show logging message 403503
syslog 403503: default-level errors, current-level alerts (enabled)

hostname(config)# no logging message 403503
hostname(config)# show logging message 403503
syslog 403503: default-level errors, current-level alerts (disabled)

hostname(config)# logging message 403503
hostname(config)# show logging message 403503
syslog 403503: default-level errors, current-level alerts (enabled)

hostname(config)# no logging message 403503 level 3
hostname(config)# show logging message 403503
syslog 403503: default-level errors (enabled)
```

Related Commands

Command	Description
clear configure logging	Clears all logging configuration or message configuration only.
logging enable	Enables logging.
show logging	Displays the enabled logging options.
show running-config logging	Displays the logging-related portion of the running configuration.

logging monitor

To enable the ASA to display syslog messages in SSH and Telnet sessions, use the **logging monitor** command in global configuration mode. To disable the display of syslog messages in SSH and Telnet sessions, use the **no** form of this command.

logging monitor [*logging_list* | *level*]

no logging monitor

Syntax Description

level	Sets the maximum severity level for syslog messages. For example, if you set the severity level to 3, then the ASA generates syslog messages for severity levels 3, 2, 1, and 0. You can specify either the number or the name, as follows: • **0** or **emergencies**—System is unusable. • **1** or **alerts**—Immediate action needed. • **2** or **critical**—Critical conditions. • **3** or **errors**—Error conditions. • **4** or **warnings**—Warning conditions. • **5** or **notifications**—Normal but significant conditions. • **6** or **informational**—Informational messages. • **7** or **debugging**—Debugging messages.
logging_list	Specifies the list that identifies the messages to send to the SSH or Telnet session. For information about creating lists, see the **logging list** command.

Defaults

The ASA does not display syslog messages in SSH and Telnet sessions by default.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **logging monitor** command enables syslog messages for all sessions in the current context; however, in each session, the **terminal** command controls whether syslog messages appear in that session.

Examples

The following example shows how to enable the display of syslog messages in console sessions. The use of the **errors** keyword indicates that messages of severity levels 0, 1, 2, and 3 should display in SSH and Telnet sessions. The **terminal** command enables the messages to appear in the current session:

```
hostname(config)# logging enable
hostname(config)# logging monitor errors
hostname(config)# terminal monitor
hostname(config)#
```

Related Commands

Command	Description
logging enable	Enables logging.
logging list	Creates a reusable list of message selection criteria.
show logging	Displays the enabled logging options.
show running-config logging	Displays the logging-related portion of the running configuration.
terminal	Sets terminal line parameters.

logging permit-hostdown

To make the status of a TCP-based syslog server irrelevant to new user sessions, use the **logging permit-hostdown** command in global configuration mode. To cause the ASA to deny new user sessions when a TCP-based syslog server is unavailable, use the **no** form of this command.

logging permit-hostdown

no logging permit-hostdown

Syntax Description

This command has no arguments or keywords.

Defaults

By default, if you have enabled logging to a syslog server that uses a TCP connection, the ASA does not allow new network access sessions when the syslog server is unavailable for any reason. The default setting is false for the **logging permit-hostdown** command.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

If you are using TCP as the logging transport protocol for sending messages to a syslog server, the ASA denies new network access sessions as a security measure if the ASA is unable to reach the syslog server. You can use the **logging permit-hostdown** command to remove this restriction.

Examples

The following example makes the status of TCP-based syslog servers irrelevant to whether the ASA permits new sessions. When the **logging permit-hostdown** command includes in its output the **show running-config logging** command, the status of TCP-based syslog servers is irrelevant to new network access sessions.

```
hostname(config)# logging permit-hostdown
hostname(config)# show running-config logging
logging enable
logging trap errors
logging host infrastructure 10.1.2.3 6/1470
logging permit-hostdown
hostname(config)#
```

Related Commands

Command	Description
logging enable	Enables logging.
logging host	Defines a syslog server.
logging trap	Enables logging to syslog servers.
show logging	Displays the enabled logging options.
show running-config logging	Displays the logging-related portion of the running configuration.

logging queue

To specify how many syslog messages the ASA may hold in its queue before processing them according to the logging configuration, use the **logging queue** command in global configuration mode. To reset the logging queue size to the default of 512 messages, use the **no** form of this command.

logging queue *queue_size*

no logging queue *queue_size*

Syntax Description

queue_size	The number of syslog messages permitted in the queue used for storing syslog messages before processing them. Valid values are from 0 to 8192 messages, depending on the platform type. If the logging queue is set to zero, the queue will be the maximum configurable size (8192 messages), depending on the platform. On the ASA-5505, the maximum queue size is 1024. On the ASA-5510, it is 2048, and on all other platforms, it is 8192 .

Defaults

The default queue size is 512 messages.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

When traffic is so heavy that the queue fills up, the ASA may discard messages. On the ASA-5505, the maximum queue size is 1024. On the ASA-5510, it is 2048. On all other platforms, it is 8192 .

Examples

The following example shows how to display the output of the **logging queue** and **show logging queue** commands:

```
hostname(config)# logging queue 0
hostname(config)# show logging queue
Logging Queue length limit : Unlimited
Current 5 msg on queue, 3513 msgs most on queue, 1 msg discard.
```

In this example, the **logging queue** command is set to 0, which means that the queue is set to the maximum of 8192. The syslog messages in the queue are processed by the ASA in the manner dictated by the logging configuration, such as sending syslog messages to mail recipients, saving them to flash memory, and so forth.

The output of this example **show logging queue** command shows that 5 messages are queued, 3513 messages was the largest number of messages in the queue at one time since the ASA was last booted, and that 1 message was discarded. Even though the queue was set for unlimited messages, the message was discarded because no block memory was available to add the message to the queue.

Related Commands

Command	Description
logging enable	Enables logging.
show logging	Displays the enabled logging options.
show running-config logging	Displays the logging-related portion of the running configuration.

logging rate-limit

To limit the rate at which syslog messages are generated, use the **logging rate-limit** command in privileged EXEC mode. To disable rate limiting, use the **no** form of this command in privileged EXEC mode.

logging rate-limit {**unlimited** | {*num* [*interval*]}} **message** *syslog_id* | **level** *severity_level*

[no] logging rate-limit [**unlimited** | {*num* [*interval*]}} **message** *syslog_id*] **level** *severity_level*

Syntax Description

interval	(Optional) Time interval (in seconds) to use for measuring the rate at which messages are generated. The valid range of values for *interval* is 0 through 2147483647.
level *severity_level*	Applies the set rate limits on all syslog messages that belong to a certain severity level. All syslog messages at a specified severity level are rate-limited individually. The valid range for *severity_level* is 1 through 7.
message	Suppresses reporting of this syslog message.
num	Number of syslog messages that can be generated during the specified time interval. The valid range of values for *num* is 0 through 2147483647.
syslog_id	ID of the syslog message to be suppressed. The valid range of values is 100000-999999.
unlimited	Disables rate limiting, which means that there is no limit on the logging rate.

Defaults

The default setting for *interval* is 1.

Command Modes

The following table shows the modes in which you can enter the command.

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(4)	This command was introduced.

Usage Guidelines

The syslog message severity levels are as follows:

- 0—System is unusable
- 1—Immediate action needed
- 2—Critical Conditions
- 3—Error Conditions

- 4—Warning Conditions
- 5—Normal but significant conditions
- 6—Informational Messages
- 7—Debugging Messages

Examples

To limit the rate of syslog message generation, you can enter a specific message ID. The following example shows how to limit the rate of syslog message generation using a specific message ID and time interval:

```
hostname(config)# logging rate-limit 100 600 message 302020
```

This example suppresses syslog message 302020 from being sent to the host after the rate limit of 100 is reached in the specified interval of 600 seconds.

To limit the rate of syslog message generation, you can enter a specific severity level. The following example shows how to limit the rate of syslog message generation using a specific severity level and time interval.

```
hostname(config)# logging rate-limit 1000 600 level 6
```

This example suppresses all syslog messages under severity level 6 to the specified rate limit of 1000 in the specified time interval of 600 seconds. Each syslog message in severity level 6 has a rate limit of 1000.

Related Commands

Command	Description
clear running-config logging rate-limit	Resets the logging rate limit setting to its default.
show logging	Shows the messages currently in the internal buffer or logging configuration settings.
show running-config logging rate-limit	Shows the current logging rate limit setting.

logging recipient-address

To specify the receiving e-mail address for syslog messages sent by the ASA, use the **logging recipient-address** command in global configuration mode. To remove the receiving e-mail address, use the **no** form of this command.

logging recipient-address *address* [**level** *level*]

no logging recipient-address *address* [**level** *level*]

Syntax Description

address	Specifies recipient e-mail address when sending syslog messages by e-mail.
level	Indicates that a severity level follows.
level	Sets the maximum severity level for syslog messages. For example, if you set the severity level to 3, then the ASA generates syslog messages for severity levels 3, 2, 1, and 0. You can specify either the number or the name, as follows: • **0** or **emergencies**—System is unusable. • **1** or **alerts**—Immediate action needed. • **2** or **critical**—Critical conditions. • **3** or **errors**—Error conditions. • **4** or **warnings**—Warning conditions. • **5** or **notifications**—Normal but significant conditions. • **6** or **informational**—Informational messages. • **7** or **debugging**—Debugging messages. **Note** We do not recommend using a severity level greater than 3 with the **logging recipient-address** command. Higher severity levels are likely to cause dropped syslog messages because of buffer overflow. The message severity level specified by a **logging recipient-address** command overrides the message severity level specified by the **logging mail** command. For example, if a **logging recipient-address** command specifies a severity level of 7 but the **logging mail** command specifies a severity level of 3, the ASA sends all messages to the recipient, including those of severity levels 4, 5, 6, and 7.

Defaults

The default value is set to the errors logging level.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You can configure up to 5 recipient addresses. If you want, each recipient address can have a different message level than that specified by the **logging mail** command. Sending syslog messages by e-mail is enabled by the **logging mail** command.

Use this command to have more urgent messages sent to a larger number of recipients.

Examples

To set up the ASA to send syslog messages by e-mail, use the following criteria:

- Send messages that are critical, alerts, or emergencies.
- Send messages using ciscosecurityappliance@example.com as the sender address.
- Send messages to admin@example.com.
- Send messages using SMTP, the primary servers pri-smtp-host, and secondary server sec-smtp-host.

Enter the following commands:

```
hostname(config)# logging mail critical
hostname(config)# logging from-address ciscosecurityappliance@example.com
hostname(config)# logging recipient-address admin@example.com
hostname(config)# smtp-server pri-smtp-host sec-smtp-host
```

Related Commands

Command	Description
logging enable	Enables logging.
logging from-address	Specifies the e-mail address from which syslog messages appear to come.
logging mail	Enables the ASA to send syslog messages by e-mail and determines which messages are sent by e-mail.
smtp-server	Configures an SMTP server.
show logging	Displays the enabled logging options.

logging savelog

To save the log buffer to flash memory, use the **logging savelog** command in privileged EXEC mode.

logging savelog [*savefile*]

Syntax Description

savefile	(Optional) Saved flash memory file name. If you do not specify the file name, the ASA saves the log file using a default time-stamp format, as follows: `LOG-YYYY-MM-DD-HHMMSS.TXT` where *YYYY* is the year, *MM* is the month, *DD* is the day of the month, and *HHMMSS* is the time in hours, minutes, and seconds.

Defaults

The defaults are as follows:

- Buffer size is 4 KB.
- Minimum free flash memory is 3 MB.
- Maximum flash memory allocation for buffer logging is 1 MB.
- The default log file name is described in the "Syntax Description" section.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Before you can save the log buffer to flash memory, you must enable logging to the buffer; otherwise, the log buffer never has data to be saved to flash memory. To enable logging to the buffer, use the **logging buffered** command.

Note The **logging savelog** command does not clear the buffer. To clear the buffer, use the **clear logging buffer** command.

Examples

The following example enables logging and the log buffer, exits global configuration mode, and saves the log buffer to flash memory using the file name, latest-logfile.txt:

```
hostname(config)# logging enable
hostname(config)# logging buffered
hostname(config)# exit
hostname# logging savelog latest-logfile.txt
hostname#
```

Related Commands

Command	Description
clear logging buffer	Clears the log buffer of all syslog messages that it contains.
copy	Copies a file from one location to another, including to a TFTP or FTP server.
delete	Deletes a file from the disk partition, such as saved log files.
logging buffered	Enables logging to the log buffer.
logging enable	Enables logging.

logging standby

To enable the failover standby ASA to send the syslog messages of this ASA to logging destinations, use the **logging standby** command in global configuration mode. To disable syslog messaging and SNMP logging, use the **no** form of this command.

logging standby

no logging standby

Syntax Description

This command has no arguments or keywords.

Defaults

The **logging standby** command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You can enable **logging standby** to ensure that the syslog messages of the failover standby ASA stay synchronized if failover occurs.

Note Using the **logging standby** command causes twice as much traffic on shared logging destinations, such as syslog servers, SNMP servers, and FTP servers.

Examples

The following example enables the ASA to send syslog messages to the failover standby ASA. The output of the **show logging** command reveals that this feature is enabled:

```
hostname(config)# logging standby
hostname(config)# show logging
Syslog logging: enabled
    Facility: 20
    Timestamp logging: disabled
    Standby logging: enabled
    Deny Conn when Queue Full: disabled
    Console logging: disabled
    Monitor logging: disabled
    Buffer logging: disabled
```

```
Trap logging: disabled
History logging: disabled
Device ID: 'inside' interface IP address "10.1.1.1"
Mail logging: disabled
ASDM logging: disabled
```

Related Commands

Command	Description
failover	Enables the failover feature.
logging enable	Enables logging.
logging host	Defines a syslog server.
show logging	Displays the enabled logging options.
show running-config logging	Displays the logging-related portion of the running configuration.

logging timestamp

To specify that syslog messages should include the date and time that the messages was generated, use the **logging timestamp** command in global configuration mode. To remove the date and time from syslog messages, use the **no** form of this command.

logging timestamp

no logging timestamp

Syntax Description

This command has no arguments or keywords.

Defaults

The ASA does not include the date and time in syslog messages by default.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **logging timestamp** command makes the ASA include a timestamp in all syslog messages.

Examples

The following example enables the inclusion of timestamp information in all syslog messages:

```
hostname(config)# logging enable
hostname(config)# logging timestamp
hostname(config)#
```

Related Commands

Command	Description
logging enable	Enables logging.
show logging	Displays the enabled logging options.
show running-config logging	Displays the logging-related portion of the running configuration.

logging trap

To specify which syslog messages the ASA sends to a syslog server, use the **logging trap** command in global configuration mode. To remove this command from the configuration, use the **no** form of this command.

logging trap [*logging_list* | *level*]

no logging trap

Syntax Description

level	Sets the maximum severity level for syslog messages. For example, if you set the severity level to 3, then the ASA generates syslog messages for severity levels 3, 2, 1, and 0. You can specify either the number or the name, as follows: • **0** or **emergencies**—System is unusable. • **1** or **alerts**—Immediate action needed. • **2** or **critical**—Critical conditions. • **3** or **errors**—Error conditions. • **4** or **warnings**—Warning conditions. • **5** or **notifications**—Normal but significant conditions. • **6** or **informational**—Informational messages. • **7** or **debugging**—Debugging messages.
logging_list	Specifies the list that identifies the messages to send to the syslog server. For information about creating lists, see the **logging list** command.

Defaults

No default syslog message trap is defined.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

If you are using TCP as the logging transport protocol, the ASA denies new network access sessions as a security measure if the ASA is unable to reach the syslog server, if the syslog server is misconfigured, or if the disk is full.

UDP-based logging does not prevent the ASA from passing traffic if the syslog server fails.

Examples

The following example shows how to send syslog messages of severity levels 0, 1, 2, and 3 to a syslog server that resides on the inside interface and uses the default protocol and port number.

```
hostname(config)# logging enable
hostname(config)# logging host inside 10.2.2.3
hostname(config)# logging trap errors
hostname(config)#
```

Related Commands

Command	Description
logging enable	Enables logging.
logging host	Defines a syslog server.
logging list	Creates a reusable list of message selection criteria.
show logging	Displays the enabled logging options.
show running-config logging	Displays the logging-related portion of the running configuration.

login

To log into privileged EXEC mode using the local user database (see the username command) or to change user names, use the **login** command in user EXEC mode.

login

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
User EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

From user EXEC mode, you can log in to privileged EXEC mode as any username in the local database using the **login** command. The **login** command is similar to the **enable** command when you have enable authentication turned on (see the **aaa authentication console** command). Unlike enable authentication, the **login** command can only use the local username database, and authentication is always required with this command. You can also change users using the **login** command from any CLI mode.

To allow users to access privileged EXEC mode (and all commands) when they log in, set the user privilege level to 2 (the default) through 15. If you configure local command authorization, then the user can only enter commands assigned to that privilege level or lower. See the **aaa authorization command** for more information.

Caution If you add users to the local database who can gain access to the CLI and whom you do not want to enter privileged EXEC mode, you should configure command authorization. Without command authorization, users can access privileged EXEC mode (and all commands) at the CLI using their own password if their privilege level is 2 or greater (2 is the default). Alternatively, you can use RADIUS or TACACS+ authentication, or you can set all local users to level 1 so you can control who can use the system enable password to access privileged EXEC mode.

Examples

The following example shows the prompt after you enter the **login** command:

```
hostname> login
```

```
Username:
```

Related Commands

Command	Description
aaa authorization command	Enables command authorization for CLI access.
aaa authentication console	Requires authentication for console, Telnet, HTTP, SSH, or **enable** command access.
logout	Logs out of the CLI.
username	Adds a user to the local database.

login-button

To customize the Login button of the WebVPN page login box that is displayed to WebVPN users when they connect to the security appliance, use the **login-button** command from webvpn customization configuration mode. To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command.

login-button {**text** | **style**} *value*

[**no**] **login-button** {**text** | **style**} *value*

Syntax Description

style	Specifies you are changing the style.
text	Specifies you are changing the text.
value	The actual text to display (maximum 256 characters), or Cascading Style Sheet (CSS) parameters (maximum 256 characters).

Defaults

The default login button text is “Login”.

The default login button style is:

border: 1px solid black;background-color:white;font-weight:bold; font-size:80%

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn customization configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

The **style** option is expressed as any valid Cascading Style Sheet (CSS) parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium (W3C) website at www.w3.org. Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at www.w3.org/TR/CSS21/propidx.html.

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.
- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma separated entry indicates the level of intensity of each color to combine with the others.

- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.

Note To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

Examples

The following example customizes the Login button with the text "OK":

```
F1-asa1(config)# webvpn
F1-asa1(config-webvpn)# customization cisco
F1-asa1(config-webvpn-custom)# login-button text OK
```

Related Commands

Command	Description
login-title	Customizes the title of the WebVPN page login box.
group-prompt	Customizes the group prompt of the WebVPN page login box.
password-prompt	Customizes the password prompt of the WebVPN page login box.
username-prompt	Customizes the username prompt of the WebVPN page login box.

login-message

To customize the login message of the WebVPN page displayed to WebVPN users when they connect to the security appliance, use the **login-message** command from webvpn customization configuration mode. To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command.

login-message {**text** | **style**} *value*

[**no**] **login-message** {**text** | **style**} *value*

Syntax Description

text	Specifies you are changing the text.
style	Specifies you are changing the style.
value	The actual text to display (maximum 256 characters), or Cascading Style Sheet (CSS) parameters (maximum 256 characters).

Defaults

The default login message is “Please enter your username and password”.

The default login message style is background-color:#CCCCCC;color:black.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
WebVPN customization configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

The **style** option is expressed as any valid Cascading Style Sheet (CSS) parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium (W3C) website at www.w3.org. Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at www.w3.org/TR/CSS21/propidx.html.

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.
- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma separated entry indicates the level of intensity of each color to combine with the others.
- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.

Note To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

Examples

In the following example, the login message text is set to "username and password":

```
hostname(config)# webvpn
hostname(config-webvpn)# customization cisco
hostname(config-webvpn-custom)# login-message text username and password
```

Related Commands

Command	Description
login-title	Customizes the title of the login box on the WebVPN page.
username-prompt	Customizes the username prompt of the WebVPN page login.
password-prompt	Customizes the password prompt of the WebVPN page login.
group-prompt	Customizes the group prompt of the WebVPN page login.

login-title

To customize the title of the login box on the WebVPN page displayed to WebVPN users, use the **login-title** command from webvpn customization configuration mode. To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command.

login-title {**text** | **style**} *value*

[**no**] **login-title** {**text** | **style**} *value*

Syntax Description

text	Specifies you are changing the text.
style	Specifies you are changing the HTML style.
value	The actual text to display (maximum 256 characters), or Cascading Style Sheet (CSS) parameters (maximum 256 characters).

Defaults

The default login text is “Login”.

The default HTML style of the login title is background-color: #666666; color: white.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn customization configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

The **style** option is expressed as any valid Cascading Style Sheet (CSS) parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium (W3C) website at www.w3.org. Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at www.w3.org/TR/CSS21/propidx.html.

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.
- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma separated entry indicates the level of intensity of each color to combine with the others.
- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.

Note To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

Examples

The following example configures the login title style:

```
hostname(config)# webvpn
hostname(config-webvpn)# customization cisco
hostname(config-webvpn-custom)# login-title style background-color: rgb(51,51,255);color:
rgb(51,51,255); font-family: Algerian; font-size: 12pt; font-style: italic; font-weight:
bold
```

Related Commands

Command	Description
login-message	Customizes the login message of the WebVPN login page.
username-prompt	Customizes the username prompt of the WebVPN login page.
password-prompt	Customizes the password prompt of the WebVPN login page.
group-prompt	Customizes the group prompt of the WebVPN login page.

logo

To customize the logo on the WebVPN page displayed to WebVPN users when they connect to the security appliance, use the **logo** command from webvpn customization mode. To remove a logo from the configuration and reset the default (the Cisco logo), use the **no** form of this command.

logo {**none** | **file** {*path value*}}

[**no**] **logo** {**none** | **file** {*path value*}}

Syntax Description

file	Indicates you are supplying a file containing a logo.
none	Indicates that there is no logo. Sets a null value, thereby disallowing a logo. Prevents inheriting a logo.
path	The path of the filename. The possible paths are disk0:, disk1:, or flash:
value	Specifies the filename of the logo. Maximum length is 255 characters, with no spaces. File type must be JPG, PNG, or GIF, and must be less than 100 KB.

Defaults

The default logo is the Cisco logo.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Webvpn customization configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

If the filename you specify does not exist, an error message displays. If you remove a logo file but the configuration still points to it, no logo displays.

The filename cannot contain spaces.

Examples

In the following example, the file cisco_logo.gif contains a custom logo:

```
hostname(config)# webvpn
hostname(config-webvpn)# customization cisco
hostname(config-webvpn-custom)#logo file disk0:cisco_logo.gif
```

Related Commands

Command	Description
title	Customizes the title of the WebVPN page.
page style	Customizes the WebVPN page using Cascading Style Sheet (CSS) parameters.

logout

To exit from the CLI, use the **logout** command in user EXEC mode.

logout

Syntax Description

This command has no arguments or keywords.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
User EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **logout** command lets you log out of the ASA. You can use the **exit** or **quit** commands to go back to unprivileged mode.

Examples

The following example shows how to log out of the ASA:

```
hostname> logout
```

Related Commands

Command	Description
login	Initiates the log-in prompt.
exit	Exits an access mode.
quit	Exits configuration or privileged mode.

logout-message

To customize the logout message of the WebVPN logout screen that is displayed to WebVPN users when they logout from WebVPN service, use the **logout-message** command from webvpn customization configuration mode. To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command.

logout-message {**text** | **style**} *value*

[**no**] **logout-message** {**text** | **style**} *value*

Syntax Description

style	Specifies you are changing the style.
text	Specifies you are changing the text.
value	The actual text to display (maximum 256 characters), or Cascading Style Sheet (CSS) parameters (maximum 256 characters).

Defaults

The default logout message text is “Goodbye”.

The default logout message style is background-color:#999999;color:black.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
WebVPN customization configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

The **style** option is expressed as any valid Cascading Style Sheet (CSS) parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium (W3C) website at www.w3.org. Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at www.w3.org/TR/CSS21/propidx.html.

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.
- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma separated entry indicates the level of intensity of each color to combine with the others.

- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.

Note To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

Examples

The following example configures the logout message style:

```
hostname(config)# webvpn
hostname(config-webvpn)# customization cisco
hostname(config-webvpn-custom)# logout-message style background-color:
rgb(51,51,255);color: rgb(51,51,255); font-family: Algerian; font-size: 12pt; font-style:
italic; font-weight: bold
```

Related Commands

Command	Description
logout-title	Customizes the logout title of the WebVPN page.
group-prompt	Customizes the group prompt of the WebVPN page login box.
password-prompt	Customizes the password prompt of the WebVPN page login box.
username-prompt	Customizes the username prompt of the WebVPN page login box.

CHAPTER 32

mac address through match dscp Commands

mac address

To specify the virtual MAC addresses for the active and standby units, use the **mac address** command in failover group configuration mode. To restore the default virtual MAC addresses, use the **no** form of this command.

mac address *phy_if* [*active_mac*] [*standby_mac*]

no mac address *phy_if* [*active_mac*] [*standby_mac*]

Syntax Description

phy_if	The physical name of the interface to set the MAC address.
active_mac	The virtual MAC address for the active unit. The MAC address must be entered in h.h.h format, where h is a 16-bit hexadecimal number.
standby_mac	The virtual MAC address for the standby unit. The MAC address must be entered in h.h.h format, where h is a 16-bit hexadecimal number.

Defaults

The defaults are as follows:

- Active unit default MAC address: 00a0.c9*physical_port_number.failover_group_id*01.
- Standby unit default MAC address: 00a0.c9*physical_port_number.failover_group_id*02.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Failover group configuration	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

If the virtual MAC addresses are not defined for the failover group, the default values are used.

If you have more than one Active/Active failover pair on the same network, it is possible to have the same default virtual MAC addresses assigned to the interfaces on one pair as are assigned to the interfaces of the other pairs because of the way the default virtual MAC addresses are determined. To avoid having duplicate MAC addresses on your network, make sure you assign each physical interface a virtual active and standby MAC address.

You can also set the MAC address using other commands or methods, but we recommend using only one method. If you set the MAC address using multiple methods, the MAC address used depends on many variables, and might not be predictable.

Examples

The following partial example shows a possible configuration for a failover group:

```
hostname(config)# failover group 1
hostname(config-fover-group)# primary
hostname(config-fover-group)# preempt 100
hostname(config-fover-group)# exit
hostname(config)# failover group 2
hostname(config-fover-group)# secondary
hostname(config-fover-group)# preempt 100
hostname(config-fover-group)# mac address e1 0000.a000.a011 0000.a000.a012
hostname(config-fover-group)# exit
hostname(config)#
```

Related Commands

Command	Description
failover group	Defines a failover group for Active/Active failover.
failover mac address	Specifies a virtual MAC address for a physical interface.

mac-address

To manually assign a private MAC address to an interface or subinterface, use the **mac-address** command in interface configuration mode. In multiple context mode, this command can assign a different MAC address to the interface in each context. For an individual interface in a cluster, you can assign a cluster pool of MAC addresses. To revert the MAC address to the default, use the **no** form of this command.

mac-address {*mac_address* [**standby** *mac_address*] | **cluster-pool** *pool_name*}

no mac-address [*mac_address* [**standby** *mac_address*] | **cluster-pool** *pool_name*]

Syntax Description

cluster-pool *pool_name*	For a cluster in individual interface mode (see the **cluster interface-mode** command), or for a management interface in any cluster interface mode, sets a pool of MAC addresses to be used for a given interface on each cluster member. Define the pool using the **mac-address pool** command.
mac_address	Sets the MAC address for this interface in H.H.H format, where H is a 16-bit hexadecimal digit. For example, the MAC address 00-0C-F1-42-4C-DE would be entered as 000C.F142.4CDE. If you use failover, this MAC address is the active MAC address. **Note** Because auto-generated addresses (the **mac-address auto** command) start with A2, you cannot start manual MAC addresses with A2 if you also want to use auto-generation.
standby *mac_address*	(Optional) Sets the standby MAC address for failover. If the active unit fails over and the standby unit becomes active, the new active unit starts using the active MAC addresses to minimize network disruption, while the old active unit uses the standby address.

Defaults

The default MAC address is the burned-in MAC address of the physical interface. Subinterfaces inherit the physical interface MAC address. Some commands set the physical interface MAC address (including this command in single mode), so the inherited address depends on that configuration.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Release	Modification
8.0(5)/8.2(2)	The use of A2 to start the MAC address was restricted when also used with the **mac-address auto** command.
9.0(1)	We added the **cluster-pool** keyword t support clustering.

Usage Guidelines

In multiple context mode, if you share an interface between contexts, you can assign a unique MAC address to the interface in each context. This feature lets the ASA easily classify packets into the appropriate context. Using a shared interface without unique MAC addresses is possible, but has some limitations. See the CLI configuration guide for more information.

You can assign each MAC address manually with this command, or you can automatically generate MAC addresses for shared interfaces in contexts using the **mac-address auto** command. If you automatically generate MAC addresses, you can use the **mac-address** command to override the generated address.

For single context mode, or for interfaces that are not shared in multiple context mode, you might want to assign unique MAC addresses to subinterfaces. For example, your service provider might perform access control based on the MAC address.

You can also set the MAC address using other commands or methods, but we recommend using only one method. If you set the MAC address using multiple methods, the MAC address used depends on many variables, and might not be predictable.

Examples

The following example configures the MAC address for GigabitEthernet 0/1.1:

```
hostname/contextA(config)# interface gigabitethernet0/1.1
hostname/contextA(config-if)# nameif inside
hostname/contextA(config-if)# security-level 100
hostname/contextA(config-if)# ip address 10.1.2.1 255.255.255.0
hostname/contextA(config-if)# mac-address 030C.F142.4CDE standby 040C.F142.4CDE
hostname/contextA(config-if)# no shutdown
```

Related Commands

Command	Description
failover mac address	Sets the active and standby MAC address of a physical interface for Active/Standby failover.
mac address	Sets the active and standby MAC address of a physical interface for Active/Active failover.
mac-address auto	Auto-generates MAC addresses (active and standby) for shared interfaces in multiple context mode.
mode	Sets the security context mode to multiple or single.
show interface	Shows the interface characteristics, including the MAC address.

mac-address auto

To automatically assign private MAC addresses to each shared context interface, use the **mac-address auto** command in global configuration mode. To disable automatic MAC addresses, use the **no** form of this command.

mac-address auto [**prefix** *prefix*]

no mac-address auto

Syntax Description

prefix *prefix*	(Optional) Sets a user-defined prefix as part of the MAC address. The *prefix* is a decimal value between 0 and 65535. If you do not enter a prefix, then the ASA generates a default prefix. This prefix is converted to a 4-digit hexadecimal number. The prefix ensures that each ASA uses unique MAC addresses (using different prefix values), so you can have multiple ASAs on a network segment, for example.

Defaults

Automatic MAC address generation is enabled—Uses an autogenerated prefix. The ASA autogenerates the prefix based on the last two bytes of the interface (ASA 5500) or backplane (ASASM) MAC address. You cannot use the legacy auto-generation method (without a prefix).

If you disable MAC address generation, see the following default MAC addresses:

- For the ASA 5500 series appliances—The physical interface uses the burned-in MAC address, and all subinterfaces of a physical interface use the same burned-in MAC address.
- For the ASASM—All VLAN interfaces use the same MAC address, derived from the backplane MAC address.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	—	—	•

Command History

Release	Modification
7.2(1)	This command was introduced.
8.0(5)/8.2(2)	The **prefix** keyword was added. The MAC address format was changed to use the prefix, to use a fixed starting value (A2), and to use a different scheme for the primary and secondary unit MAC addresses in a failover pair. The MAC addresess are also now persistent accross reloads. The command parser now checks if auto-generation is enabled; if you want to also manually assign a MAC address, you cannot start the manual MAC address with A2.

Release	Modification
8.5(1)	Autogeneration is now enabled by default (**mac-address auto**).
8.6(1)	The ASA now converts the automatic MAC address generation configuration to use a default prefix. The ASA auto-generates the prefix based on the last two bytes of the interface (ASA 5500) or backplane (ASASM) MAC address. This conversion happens automatically when you reload, or if you reenable MAC address generation. The legacy method of MAC address generation is no longer available. **Note** To maintain hitless upgrade for failover pairs, the ASA does *not* convert the MAC address method in an existing configuration upon a reload if failover is enabled.

Usage Guidelines

To allow contexts to share interfaces, we suggest that you assign unique MAC addresses to each shared context interface. The MAC address is used to classify packets within a context. If you share an interface, but do not have unique MAC addresses for the interface in each context, then the destination IP address is used to classify packets. The destination address is matched with the context NAT configuration, and this method has some limitations compared to the MAC address method. See the CLI configuration guide for information about classifying packets.

In the rare circumstance that the generated MAC address conflicts with another private MAC address in your network, you can manually set the MAC address for the interface within the context. See the **mac-address** command to manually set the MAC address.

Interaction with Manual MAC Addresses

If you manually assign a MAC address and also enable auto-generation, then the manually assigned MAC address is used. If you later remove the manual MAC address, the auto-generated address is used.

Because auto-generated addresses start with A2, you cannot start manual MAC addresses with A2 if you also want to use auto-generation.

Failover MAC Addresses

For use with failover, the ASA generates both an active and standby MAC address for each interface. If the active unit fails over and the standby unit becomes active, the new active unit starts using the active MAC addresses to minimize network disruption. See the "MAC Address Format Using a Prefix" section for more information.

For upgrading failover units with the legacy version of the **mac-address auto** command before the **prefix** keyword was introduced, see the "MAC Address Format Without a Prefix (Legacy Method)" section.

MAC Address Format Using a Prefix

The ASA generates the MAC address using the following format:

A2*xx.yyzz.zzzz*

Where *xx.yy* is a user-defined prefix or an autogenerated prefix based on the last two bytes of the interface (ASA 5500) or backplane (ASASM) MAC address, and *zz.zzzz* is an internal counter generated by the ASA. For the standby MAC address, the address is identical except that the internal counter is increased by 1.

For an example of how the prefix is used, if you set a prefix of 77, then the ASA converts 77 into the hexadecimal value 004D (*yyxx*). When used in the MAC address, the prefix is reversed (*xxyy*) to match the ASA native form:

A2**4D.00***zz.zzzz*

For a prefix of 1009 (03F1), the MAC address is:

A2**F1.03***zz.zzzz*

MAC Address Format Without a Prefix (Legacy Method)

This method may be used if you use failover and you upgraded to Version 8.6 or later; in this case, you have to manually enable the prefix method.

Without a prefix, the MAC address is generated using the following format:

- Active unit MAC address: 12*_slot.port_subid.contextid*.
- Standby unit MAC address: 02*_slot.port_subid.contextid*.

For platforms with no interface slots, the slot is always 0. The *port* is the interface port. The *subid* is an internal ID for the subinterface, which is not viewable. The *contextid* is an internal ID for the context, viewable with the **show context detail** command. For example, the interface GigabitEthernet 0/1.200 in the context with the ID 1 has the following generated MAC addresses, where the internal ID for subinterface 200 is 31:

- Active: 1200.0131.0001
- Standby: 0200.0131.0001

This MAC address generation method does not allow for persistent MAC addresses across reloads, does not allow for multiple ASAs on the same network segment (because unique MAC addresses are not guaranteed), and does not prevent overlapping MAC addresses with manually assigned MAC addresses. We recommend using a prefix with the MAC address generation to avoid these issues.

When the MAC Address is Generated

When you configure a **nameif** command for the interface in a context, the new MAC address is generated immediately. If you enable this command after you configure context interfaces, then MAC addresses are generated for all interfaces immediately after you enter the command. If you use the **no mac-address auto** command, the MAC address for each interface reverts to the default MAC address. For example, subinterfaces of GigabitEthernet 0/1 revert to using the MAC address of GigabitEthernet 0/1.

Setting the MAC Address Uisng Other Methods

You can also set the MAC address using other commands or methods, but we recommend using only one method. If you set the MAC address using multiple methods, the MAC address used depends on many variables, and might not be predictable.

Viewing MAC Addresses in the System Configuration

To view the assigned MAC addresses from the system execution space, enter the **show running-config all context** command.

The **all** option is required to view the assigned MAC addresses. Although this command is user-configurable in global configuration mode only, the **mac-address auto** command appears as a read-only entry in the configuration for each context along with the assigned MAC address. Only allocated interfaces that are configured with a **nameif** command within the context have a MAC address assigned.

Note If you manually assign a MAC address to an interface, but also have auto-generation enabled, the auto-generated address continues to show in the configuration even though the manual MAC address is the one that is in use. If you later remove the manual MAC address, the auto-generated one shown will be used.

Viewing MAC Addresses Within a Context

To view the MAC address in use by each interface within the context, enter the **show interface | include (Interface)|(MAC)** command.

Note The **show interface** command shows the MAC address in use; if you manually assign a MAC address and also have auto-generation enabled, then you can only view the unused auto-generated address from within the system configuration.

Examples

The following example enables automatic MAC address generation with a prefix of 78:

```
hostname(config)# mac-address auto prefix 78
```

The following output from the **show running-config all context admin** command shows the primary and standby MAC address assigned to the Management0/0 interface:

```
hostname# show running-config all context admin

context admin
  allocate-interface Management0/0
  mac-address auto Management0/0 a24d.0000.1440 a24d.0000.1441
  config-url disk0:/admin.cfg
```

The following output from the **show running-config all context** command shows all the MAC addresses (primary and standby) for all context interfaces. Note that because the GigabitEthernet0/0 and GigabitEthernet0/1 main interfaces are not configured with a **nameif** command inside the contexts, no MAC addresses have been generated for them.

```
hostname# show running-config all context

admin-context admin
context admin
  allocate-interface Management0/0
  mac-address auto Management0/0 a2d2.0400.125a a2d2.0400.125b
  config-url disk0:/admin.cfg
!

context CTX1
  allocate-interface GigabitEthernet0/0
  allocate-interface GigabitEthernet0/0.1-GigabitEthernet0/0.5
  mac-address auto GigabitEthernet0/0.1 a2d2.0400.11bc a2d2.0400.11bd
  mac-address auto GigabitEthernet0/0.2 a2d2.0400.11c0 a2d2.0400.11c1
  mac-address auto GigabitEthernet0/0.3 a2d2.0400.11c4 a2d2.0400.11c5
  mac-address auto GigabitEthernet0/0.4 a2d2.0400.11c8 a2d2.0400.11c9
  mac-address auto GigabitEthernet0/0.5 a2d2.0400.11cc a2d2.0400.11cd
  allocate-interface GigabitEthernet0/1
  allocate-interface GigabitEthernet0/1.1-GigabitEthernet0/1.3
  mac-address auto GigabitEthernet0/1.1 a2d2.0400.120c a2d2.0400.120d
  mac-address auto GigabitEthernet0/1.2 a2d2.0400.1210 a2d2.0400.1211
  mac-address auto GigabitEthernet0/1.3 a2d2.0400.1214 a2d2.0400.1215
```

```
  config-url disk0:/CTX1.cfg
!

context CTX2
  allocate-interface GigabitEthernet0/0
  allocate-interface GigabitEthernet0/0.1-GigabitEthernet0/0.5
  mac-address auto GigabitEthernet0/0.1 a2d2.0400.11ba a2d2.0400.11bb
  mac-address auto GigabitEthernet0/0.2 a2d2.0400.11be a2d2.0400.11bf
  mac-address auto GigabitEthernet0/0.3 a2d2.0400.11c2 a2d2.0400.11c3
  mac-address auto GigabitEthernet0/0.4 a2d2.0400.11c6 a2d2.0400.11c7
  mac-address auto GigabitEthernet0/0.5 a2d2.0400.11ca a2d2.0400.11cb
  allocate-interface GigabitEthernet0/1
  allocate-interface GigabitEthernet0/1.1-GigabitEthernet0/1.3
  mac-address auto GigabitEthernet0/1.1 a2d2.0400.120a a2d2.0400.120b
  mac-address auto GigabitEthernet0/1.2 a2d2.0400.120e a2d2.0400.120f
  mac-address auto GigabitEthernet0/1.3 a2d2.0400.1212 a2d2.0400.1213
  config-url disk0:/CTX2.cfg
!
```

Related Commands

Command	Description
failover mac address	Sets the active and standby MAC address of a physical interface for Active/Standby failover.
mac address	Sets the active and standby MAC address of a physical interface for Active/Active failover.
mac-address	Manually sets the MAC address (active and standby) for a physical interface or subinterface. In multiple context mode, you can set different MAC addresses in each context for the same interface.
mode	Sets the security context mode to multiple or single.
show interface	Shows the interface characteristics, including the MAC address.

mac-address pool

To add a MAC address pool for use on an individual interface in an ASA cluster, use the **mac-address pool** command in global configuration mode. To remove an unused pool, use the **no** form of this command.

mac-address pool *name start_mac_address* **-** *end_mac_address*

no mac-address pool *name* [*start_mac_address* **-** *end_mac_address*]

Syntax Description

name	Names the pool up to 63 characters in length.
start_mac_address **-** *end_mac_address*	Specifies the first MAC address and the last MAC address. Note to add a space around the dash (-).

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

You can use the pool in the **mac-address cluster-pool** command in interface configuration mode. It is not common to manually configure MAC addresses for an interface, but if you have special needs to do so, then this pool is used to assign a unique MAC address to each interface.

Examples

The following example adds a MAC address pool with 8 MAC addresses, and assigns it to the gigabitethernet 0/0 interface:

```
hostname(config)# mac-address pool pool1 000C.F142.4CD1 - 000C.F142.4CD7
hostname(config)# interface gigabitethernet 0/0
hostname(config-ifc)# mac-address cluster-pool pool1
```

Related Commands

Command	Description
interface	Configures an interface.
mac-address	Configures a MAC address for an interface.

mac-address-table aging-time

To set the timeout for MAC address table entries, use the **mac-address-table aging-time** command in global configuration mode. To restore the default value of 5 minutes, use the **no** form of this command.

mac-address-table aging-time *timeout_value*

no mac-address-table aging-time

Syntax Description

timeout_value	The time a MAC address entry stays in the MAC address table before timing out, between 5 and 720 minutes (12 hours). 5 minutes is the default.

Defaults

The default timeout is 5 minutes.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	—	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

No usage guidelines.

Examples

The following example sets the MAC address timeout to 10 minutes:

```
hostname(config)# mac-address-timeout aging time 10
```

Related Commands

Command	Description
arp-inspection	Enables ARP inspection, which compares ARP packets to static ARP entries.
firewall transparent	Sets the firewall mode to transparent.
mac-address-table static	Adds static MAC address entries to the MAC address table.
mac-learn	Disables MAC address learning.
show mac-address-table	Shows the MAC address table, including dynamic and static entries.

mac-address-table static

To add a static entry to the MAC address table, use the **mac-address-table static** command in global configuration mode. To remove a static entry, use the **no** form of this command. Normally, MAC addresses are added to the MAC address table dynamically as traffic from a particular MAC address enters an interface. You can add static MAC addresses to the MAC address table if desired. One benefit to adding static entries is to guard against MAC spoofing. If a client with the same MAC address as a static entry attempts to send traffic to an interface that does not match the static entry, then the ASA drops the traffic and generates a system message.

mac-address-table static *interface_name mac_address*

no mac-address-table static *interface_name mac_address*

Syntax Description

interface_name	The source interface.
mac_address	The MAC address you want to add to the table.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	—	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example adds a static MAC address entry to the MAC address table:

```
hostname(config)# mac-address-table static inside 0010.7cbe.6101
```

Related Commands

Command	Description
arp	Adds a static ARP entry.
firewall transparent	Sets the firewall mode to transparent.
mac-address-table aging-time	Sets the timeout for dynamic MAC address entries.

Command	Description
mac-learn	Disables MAC address learning.
show mac-address-table	Shows MAC address table entries.

mac-learn

To disable MAC address learning for an interface, use the **mac-learn** command in global configuration mode. To reenable MAC address learning, use the **no** form of this command. By default, each interface automatically learns the MAC addresses of entering traffic, and the ASA adds corresponding entries to the MAC address table. You can disable MAC address learning if desired.

mac-learn *interface_name* **disable**

no mac-learn *interface_name* **disable**

Syntax Description

interface_name	The interface on which you want to disable MAC learning.
disable	Disables MAC learning.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	—	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example disables MAC learning on the outside interface:

```
hostname(config)# mac-learn outside disable
```

Related Commands

Command	Description
clear configure mac-learn	Sets the **mac-learn** configuration to the default.
firewall transparent	Sets the firewall mode to transparent.
mac-address-table static	Adds static MAC address entries to the MAC address table.
show mac-address-table	Shows the MAC address table, including dynamic and static entries.
show running-config mac-learn	Shows the **mac-learn** configuration.

mac-list

To specify a list of MAC addresses to be used to exempt MAC addresses from authentication and/or authorization, use the **mac-list** command in global configuration mode. To remove a MAC list entry, use the **no** form of this command.

mac-list *id* {**deny | permit**} *mac macmask*

no mac-list *id* {**deny | permit**} *mac macmask*

Syntax Description

deny	Indicates that traffic matching this MAC address does not match the MAC list and is subject to both authentication and authorization when specified in the **aaa mac-exempt** command. You might need to add a deny entry to the MAC list if you permit a range of MAC addresses using a MAC address mask such as ffff.ffff.0000, and you want to force a MAC address in that range to be authenticated and authorized.
id	Specifies a hexadecimal MAC access list number. To group a set of MAC addresses, enter the **mac-list** command as many times as needed with the same ID value. The order of entries matters, because the packet uses the first entry it matches, as opposed to a best match scenario. If you have a permit entry, and you want to deny an address that is allowed by the permit entry, be sure to enter the deny entry before the permit entry.
mac	Specifies the source MAC address in 12-digit hexadecimal form; that is, nnnn.nnnn.nnnn
macmask	Specifies the portion of the MAC address that should be used for matching. For example, ffff.ffff.ffff matches the MAC address exactly. ffff.ffff.0000 matches only the first 8 digits.
permit	Indicates that traffic matching this MAC address matches the MAC list and is exempt from both authentication and authorization when specified in the **aaa mac-exempt** command.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To enable MAC address exemption from authentication and authorization, use the **aaa mac-exempt** command. You can only add one instance of the **aaa mac-exempt** command, so be sure that your MAC list includes all the MAC addresses you want to exempt. You can create multiple MAC lists, but you can only use one at a time.

Examples

The following example bypasses authentication for a single MAC address:

```
hostname(config)# mac-list abc permit 00a0.c95d.0282 ffff.ffff.ffff
hostname(config)# aaa mac-exempt match abc
```

The following entry bypasses authentication for all Cisco IP Phones, which have the hardware ID 0003.E3:

```
hostname(config)# mac-list acd permit 0003.E300.0000 FFFF.FF00.0000
hostname(config)# aaa mac-exempt match acd
```

The following example bypasses authentication for a a group of MAC addresses except for 00a0.c95d.02b2. Enter the deny statement before the permit statement, because 00a0.c95d.02b2 matches the permit statement as well, and if it is first, the deny statement will never be matched.

```
hostname(config)# mac-list 1 deny 00a0.c95d.0282 ffff.ffff.ffff
hostname(config)# mac-list 1 permit 00a0.c95d.0000 ffff.ffff.0000
hostname(config)# aaa mac-exempt match 1
```

Related Commands

Command	Description
aaa authentication	Enables user authentication.
aaa authorization	Enables user authorization services.
aaa mac-exempt	Exempts a list of MAC addresses from authentication and authorization.
clear configure mac-list	Removes a list of MAC addresses previously specified by the **mac-list** command.
show running-config mac-list	Displays a list of MAC addresses previously specified in the **mac-list** command.

mail-relay

To configure a local domain name, use the **mail-relay** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

mail-relay *domain_name* **action** {**drop-connection** | **log**}

no mail-relay *domain_name* **action** {**drop-connection** | **log**}

Syntax Description

domain_name	Specifies the domain name.
drop-connection	Closes the connection.
log	Generates a system log message.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to configure a mail relay for a specific domain:

```
hostname(config)# policy-map type inspect esmtp esmtp_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# mail-relay mail action drop-connection
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

management-access

To allow management access to an interface other than the one from which you entered the ASA when using VPN, use the **management-access** command in global configuration mode. To disable management access, use the **no** form of this command.

management-access *mgmt_if*

no management-access *mgmt_if*

Syntax Description

mgmt_if	Specifies the name of the management interface you want to access when entering the ASA from another interface.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•		—

Command History

Release	Modification
7.0(1)	This command was itnroduced.

Usage Guidelines

This command allows you to connect to an interface other than the one you entered the ASA from when using a full tunnel IPsec VPN or SSL VPN client (AnyConnect 2.x client, SVC 1.x) or across a site-to-site IPsec tunnel. You can use Telnet, SSH, Ping, or ASDM to connect to an ASA interface.

You can define only one management-access interface.

Note When using identity NAT between the management-access interface network and VPN networks (a common NAT configuration for VPN traffic), you must specify the **nat** command **route-lookup** keyword. Without route lookup, the ASA sends traffic out the interface specified in the **nat** command, regardless of what the routing table says. For example, you configure **management-access inside**, so a VPN user entering on the outside can manage the inside interface. If the identity **nat** command specifies **(inside,outside)**, then you do not want the ASA to send the management traffic out to the inside network; it will never return to the inside interface IP address. The route lookup option lets the ASA send the traffic directly to the inside interface IP address instead of to the inside network. For traffic from the VPN client to a host on the inside network, the route lookup option will still result in the correct egress interface (inside), so normal traffic flow is not affected.

Examples

The following example shows how to configure a firewall interface named “inside” as the management access interface:

```
hostname(config)# management-access inside
hostname(config)# show running-config management-access
management-access inside
```

Related Commands

Command	Description
clear configure management-access	Removes the configuration of an internal interface for management access of the ASA.
show management-access	Displays the name of the internal interface configured for management access.

management-only

To set an interface to accept management traffic only, use the **management-only** command in interface configuration mode. To allow through traffic, use the **no** form of this command.

management-only

no management-only

Syntax Description

This command has no arguments or keywords.

Defaults

The Management *n*/*n* interface, if available for your model, is set to management-only mode by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	The placement of this command in the running configuration has been moved to the top of the interface section to support ASA clustering, which has special exemptions for management interfaces.

Usage Guidelines

Some models include a dedicated management interface called Management *n*/*n*, which is meant to support traffic to the ASA. However, you can configure any interface to be a management-only interface using the **management-only** command. Also, for Management *n*/*n*, you can disable management-only mode so the interface can pass through traffic just like any other interface.

Note For the ASA 5512-X through ASA 5555-X, you cannot disable management-only mode for the Management interface. By default, this command is always enabled.

In transparent firewall mode, in addition to the maximum allowed through-traffic interfaces, you can also use the Management interface (either the physical interface, a subinterface (if supported for your model), or an EtherChannel interface comprised of Management interfaces (if you have multiple Management interfaces)) as a separate management interface. You cannot use any other interface types as management interfaces.

If your model does not include a Management interface, you must manage the transparent firewall from a data interface.

In multiple context mode, you cannot share any interfaces, including the Management interface, across contexts. To provide management per context, you can create subinterfaces of the Management interface and allocate a Management subinterface to each context. Note that the ASA 5512-X through ASA 5555-X do not allow subinterfaces on the Management interface, so for per-context management, you must connect to a data interface.

The management interface is not part of a normal bridge group. Note that for operational purposes, it is part of a non-configurable bridge group.

Examples

The following example disables management-only mode on the Management interface:

```
hostname(config)# interface management0/0
hostname(config-if)# no management-only
```

The following example enables management-only mode on a subinterface:

```
hostname(config)# interface gigabitethernet0/2.1
hostname(config-subif)# management-only
```

Related Commands

Command	Description
interface	Configures an interface and enters interface configuration mode.

map-name

To map a user-defined attribute name to a Cisco attribute name, use the **map-name** command in ldap-attribute-map configuration mode.

To remove this mapping, use the **no** form of this command.

map-name *user-attribute-name Cisco-attribute-name*

no map-name *user-attribute-name Cisco-attribute-name*

Syntax Description

user-attribute-name	Specifies the user-defined attribute name that you are mapping to the Cisco attribute.
Cisco-attribute-name	Specifies the Cisco attribute name that you are mapping to the user-defined name.

Defaults

By default, no name mappings exist.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
ldap-attribute-map configuration	•	•	•	•	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

With the **map-name** command, you can map your own attribute names to Cisco attribute names. You can then bind the resulting attribute map to an LDAP server. Your typical steps would include:

1. Use the **ldap attribute-map** command in global configuration mode to create an unpopulated attribute map. This commands enters ldap-attribute-map configuration mode.
2. Use the **map-name** and **map-value** commands in ldap-attribute-map configuration mode to populate the attribute map.
3. Use the **ldap-attribute-map** command in aaa-server host mode to bind the attribute map to an LDAP server. Note the hyphen after “ldap” in this command.

Note To use the attribute mapping features correctly, you need to understand both the Cisco LDAP attribute names and values as well as the user-defined attribute names and values.

Examples

The following example commands map a user-defined attribute name Hours to the Cisco attribute name cVPN3000-Access-Hours in the LDAP attribute map myldapmap:

```
hostname(config)# ldap attribute-map myldapmap
hostname(config-ldap-attribute-map)# map-name Hours cVPN3000-Access-Hours
hostname(config-ldap-attribute-map)#
```

Within ldap-attribute-map configuration mode, you can enter "?" to display the complete list of Cisco LDAP attribute names:

```
hostname(config-ldap-attribute-map)# map-name <name>
ldap mode commands/options:
cisco-attribute-names:
  cVPN3000-Access-Hours
  cVPN3000-Allow-Network-Extension-Mode
  cVPN3000-Auth-Service-Type
  cVPN3000-Authenticated-User-Idle-Timeout
  cVPN3000-Authorization-Required
  cVPN3000-Authorization-Type
    :
    :
  cVPN3000-X509-Cert-Data
hostname(config-ldap-attribute-map)#
```

Related Commands

Command	Description
ldap attribute-map (global configuration mode)	Creates and names an LDAP attribute map for mapping user-defined attribute names to Cisco LDAP attribute names.
ldap-attribute-map (aaa-server host mode)	Binds an LDAP attribute map to an LDAP server.
map-value	Maps a user-defined attribute value to a Cisco attribute.
show running-config ldap attribute-map	Displays a specific running LDAP attribute map or all running attribute maps.
clear configure ldap attribute-map	Removes all LDAP attribute maps.

map-value

To map a user-defined value to a Cisco LDAP value, use the **map-value** command in ldap-attribute-map configuration mode. To delete an entry within a map, use the **no** form of this command.

map-value *user-attribute-name user-value-string Cisco-value-string*

no map-value *user-attribute-name user-value-string Cisco-value-string*

Syntax Description

Cisco-value-string	Specifies the Cisco value string for the Cisco attribute.
user-attribute-name	Specifies the user-defined attribute name that you are mapping to the Cisco attribute name.
user-value-string	Specifies the user-defined value string that you are mapping to the Cisco attribute value.

Defaults

By default, there are no user-defined values mapped to Cisco attributes.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
ldap-attribute-map configuration	•	•	•	•	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

With the **map-value** command, you can map your own attribute values to Cisco attribute names and values. You can then bind the resulting attribute map to an LDAP server. Your typical steps would include:

1. Use the **ldap attribute-map** command in global configuration mode to create an unpopulated attribute map. This commands enters ldap-attribute-map configuration mode.
2. Use the **map-name** and **map-value** commands in ldap-attribute-map configuration mode to populate the attribute map.
3. Use the **ldap-attribute-map** command in aaa-server host mode to bind the attribute map to an LDAP server. Note the hyphen after “ldap” in this command.

Note To use the attribute mapping features correctly, you need to understand both the Cisco LDAP attribute names and values as well as the user-defined attribute names and values.

Examples

The following example, entered in ldap-attribute-map configuration mode, sets the user-defined value of the user attribute Hours to a user-defined time policy named workDay and a Cisco-defined time policy named Daytime:

```
hostname(config)# ldap attribute-map myldapmap
hostname(config-ldap-attribute-map)# map-value Hours workDay Daytime
hostname(config-ldap-attribute-map)#
```

Related Commands

Command	Description
ldap attribute-map (global configuration mode)	Creates and names an LDAP attribute map for mapping user-defined attribute names to Cisco LDAP attribute names.
ldap-attribute-map (aaa-server host mode)	Binds an LDAP attribute map to an LDAP server.
map-name	Maps a user-defined LDAP attribute name with a Cisco LDAP attribute name.
show running-config ldap attribute-map	Displays a specific running LDAP attribute map or all running attribute maps.
clear configure ldap attribute-map	Removes all LDAP maps.

mapping-service

To configure a mapping service for the Cisco Intercompany Media Engine proxy, use the **mapping-service** command in UC-IME configuration mode. To remove the mapping service from the proxy, use the **no** form of this command.

mapping-service listening-interface *interface* [**listening-port** *port*] **uc-ime-interface** *interface*

no mapping-service listening-interface *interface* [**listening-port** *port*] **uc-ime-interface** *interface*

Syntax Description

interface	Specifies the name of the interface to be used for the listening interface or uc-ime interface.
listening-interface	Configures the interface on which the ASA listens for the mapping requests.
listening-port	(Optional) Configures the listening port for the mapping service.
port	(Optional) Specifies the TCP port number on which the ASA listens for the mapping requests. The port number must be 1024 or higher to avoid conflicts with other services on the device, such as Telnet or SSH. By default, the port number is TCP 8060.
uc-ime-interface	Configures the interface that connects to the remote Cisco UCM.

Defaults

By default the mapping-service for off-path deployments of the Cisco Intercompany Media Engine proxy listens on TCP port 8060.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
UC-IME configuration	•	—	•	—	—

Command History

Release	Modification
8.3(1)	This command was introduced.

Usage Guidelines

For an off-path deployment of the Cisco Intercompany Media Engine proxy on the ASA, adds the mapping service to the proxy configuration. To configure the mapping service, you must specify the outside interface (remote enterprise side) on which to listen for mapping requests and the interface that connects to the remote Cisco UCM.

Note You can only configure one mapping server for the Cisco Intercompany Media Engine proxy.

You configure the mapping service when the Cisco Intercompany Media Engine proxy is configured for an off-path deployment.

In an off path deployment, inbound and outbound Cisco Intercompany Media Engine calls pass through an adaptive security appliance enabled with the Cisco Intercompany Media Engine proxy. The adaptive security appliance is located in the DMZ and configured to support primarily Cisco Intercompany Media Engine. Normal Internet-facing traffic does not flow through this ASA.

For all inbound calls, the signaling is directed to the ASA because destined Cisco UCMs are configured with the global IP address on the ASA. For outbound calls, the called party could be any IP address on the Internet; therefore, the ASA is configured with a mapping service that dynamically provides an internal IP address on the ASA for each global IP address of the called party on the Internet.

Cisco UCM sends all outbound calls directly to the mapped internal IP address on the adaptive security appliance instead of the global IP address of the called party on the Internet. The ASA then forwards the calls to the global IP address of the called party.

Examples

The following example shows ...:

```
hostname(config)# uc-ime offpath_uc-ime_proxy
hostname(config-uc-ime)# media-termination ime-media-term
hostname(config-uc-ime)# ucm address 192.168.10.30 trunk-security-mode non-secure
hostname(config-uc-ime)# ticket epoch 1 password password1234
hostname(config-uc-ime)# fallback monitoring timer 120
hostname(config-uc-ime)# fallback hold-down timer 30
hostname(config-uc-ime)# mapping-service listening-interface inside listening-port 8060
uc-ime-interface outside
```

Related Commands

Command	Description
show running-config uc-ime	Shows the running configuration of the Cisco Intercompany Media Engine proxy.
show uc-ime	Displays statistical or detailed information about fallback-notifications, mapping-service-sessions, and signaling-sessions.
uc-ime	Creates the Cisco Intercompany Media Engine proxy instance on the ASA.

mask

When using the Modular Policy Framework, mask out part of the packet that matches a **match** command or class map by using the **mask** command in match or class configuration mode. This mask action is available in an inspection policy map (the **policy-map type inspect** command) for application traffic; however, not all applications allow this action. For example, you can you use **mask** command for the DNS application inspection to mask a header flag before allowing the traffic through the ASA. To disable this action, use the **no** form of this command.

mask [**log**]

no mask [**log**]

Syntax Description

log	Logs the match. The system log message number depends on the application.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Match and class configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

An inspection policy map consists of one or more **match** and **class** commands. The exact commands available for an inspection policy map depends on the application. After you enter the **match** or **class** command to identify application traffic (the **class** command refers to an existing **class-map type inspect** command that in turn includes **match** commands), you can enter the **mask** command to mask part of the packet that matches the **match** command or **class** command.

When you enable application inspection using the **inspect** command in a Layer 3/4 policy map (the **policy-map** command), you can enable the inspection policy map that contains this action, for example, enter the **inspect dns dns_policy_map** command where dns_policy_map is the name of the inspection policy map.

Examples

The following example masks the RD and RA flags in the DNS header before allowing the traffic through the ASA:

```
hostname(config-cmap)# policy-map type inspect dns dns-map1
```

```
hostname(config-pmap-c)# match header-flag RD
hostname(config-pmap-c)# mask log
hostname(config-pmap-c)# match header-flag RA
hostname(config-pmap-c)# mask log
```

Related Commands

Commands	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
policy-map type inspect	Defines special actions for application inspection.
show running-config policy-map	Display all current policy map configurations.

mask-banner

To obfuscate the server banner, use the **mask-banner** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

mask-banner

no mask-banner

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to mask the server banner:

```
hostname(config)# policy-map type inspect esmtp esmtp_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# mask-banner
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

mask-syst-reply

To hide the FTP server response from clients, use the **mask-syst-reply** command in FTP map configuration mode, which is accessible by using the **ftp-map** command. To remove the configuration, use the **no** form of this command.

mask-syst-reply

no mask-syst-reply

Syntax Description

This command has no arguments or keywords.

Defaults

This command is enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
FTP map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Use the mask-syst-reply command with strict FTP inspection to protect the FTP server system from clients. After enabling this command, the servers replies to the **syst** command are replaced by a series of Xs.

Examples

The following example causes the ASA to replace the FTP server replies to the syst command with Xs:

```
hostname(config)# ftp-map inbound_ftp
hostname(config-ftp-map)# mask-syst-reply
hostname(config-ftp-map)#
```

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
ftp-map	Defines an FTP map and enables FTP map configuration mode.
inspect ftp	Applies a specific FTP map to use for application inspection.
policy-map	Associates a class map with specific security actions.
request-command deny	Specifies FTP commands to disallow.

match access-list

When using the Modular Policy Framework, use an access list to identify traffic to which you want to apply actions by using the **match access-list** command in class-map configuration mode. To remove the **match access-list** command, use the **no** form of this command.

match access-list *access_list_name*

no match access-list *access_list_name*

Syntax Description

access_list_name	Specifies the name of an access list to be used as match criteria.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class-map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Configuring Modular Policy Framework consists of four tasks:

1. Identify the Layer 3 and 4 traffic to which you want to apply actions using the **class-map** command.

   After you enter the **class-map** command, you can enter the **match access-list** command to identify the traffic. Alternatively, you can enter a different type of **match** command, such as the **match port** command. You can only include one **match access-list** command in the class map, and you cannot combine it with other types of **match** commands. The exception is if you define the **match default-inspection-traffic** command which matches the default TCP and UDP ports used by all applications that the ASA can inspect, then you can narrow the traffic to match using a **match access-list** command. Because the **match default-inspection-traffic** command specifies the ports to match, any ports in the access list are ignored.

2. (Application inspection only) Define special actions for application inspection traffic using the **policy-map type inspect** command.
3. Apply actions to the Layer 3 and 4 traffic using the **policy-map** command.
4. Activate the actions on an interface using the **service-policy** command.

Examples

The following example creates three Layer 3/4 class maps that match three access lists:

```
hostname(config)# access-list udp permit udp any any
hostname(config)# access-list tcp permit tcp any any
hostname(config)# access-list host_foo permit ip any 10.1.1.1 255.255.255.255

hostname(config)# class-map all_udp
hostname(config-cmap)# description "This class-map matches all UDP traffic"
hostname(config-cmap)# match access-list udp

hostname(config-cmap)# class-map all_tcp
hostname(config-cmap)# description "This class-map matches all TCP traffic"
hostname(config-cmap)# match access-list tcp

hostname(config-cmap)# class-map to_server
hostname(config-cmap)# description "This class-map matches all traffic to server 10.1.1.1"
hostname(config-cmap)# match access-list host_foo
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
match any	Includes all traffic in the class map.
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

match any

When using the Modular Policy Framework, match all traffic to which you want to apply actions by using the **match any** command in class-map configuration mode. To remove the **match any** command, use the **no** form of this command.

match any

no match any

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class-map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Configuring Modular Policy Framework consists of four tasks:

1. Identify the Layer 3 and 4 traffic to which you want to apply actions using the **class-map** command.

   After you enter the **class-map** command, you can enter the **match any** command to identify all traffic. Alternatively, you can enter a different type of **match** command, such as the **match port** command. You cannot combine the **match any** command with other types of **match** commands.
2. (Application inspection only) Define special actions for application inspection traffic using the **policy-map type inspect** command.
3. Apply actions to the Layer 3 and 4 traffic using the **policy-map** command.
4. Activate the actions on an interface using the **service-policy** command.

Examples

This example shows how to define a traffic class using a class map and the **match any** command:

```
hostname(config)# class-map cmap
hostname(config-cmap)# match any
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
match access-list	Matches traffic according to an access list.
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

match apn

To configure a match condition for an access point name in GTP messages, use the **match apn** command in class-map or policy-map configuration mode. To remove the match condition, use the **no** form of this command.

match [**not**] **apn regex** [*regex_name* | **class** *regex_class_name*]

no match [**not**] **apn regex** [*regex_name* | **class** *regex_class_name*]

Syntax Description

regex_name	Specifies a regular expression.
class *regex_class_name*	Specifies a regular expression class map.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class-map or policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command can be configured in a GTP class map or policy map. Only one entry can be entered in a GTP class map.

Examples

The following example shows how to configure a match condition for an access point name in an GTP inspection class map:

```
hostname(config-cmap)# match apn class gtp_regex_apn
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
match any	Includes all traffic in the class map.

Command	Description
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

match body

To configure a match condition on the length or length of a line of an ESMTP body message, use the **match body** command in class-map or policy-map configuration mode. To remove a configured section, use the **no** form of this command.

match [**not**] **body [length | line length] gt** *bytes*

no match [**not**] **body [length | line length] gt** *bytes*

Syntax Description

length	Specifies the length of an ESMTP body message.
line length	Specifies the length of a line of an ESMTP body message.
bytes	Specifies the number to match in bytes.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Class-map or policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to configure a match condition for a body line length in an ESMTP inspection policy map:

```
hostname(config)# policy-map type inspect esmtp esmtp_map
hostname(config-pmap)# match body line length gt 1000
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
match any	Includes all traffic in the class map.

Command	Description
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

match called-party

To configure a match condition on the H.323 called party, use the **match called-party** command in policy-map configuration mode. To disable this feature, use the **no** form of this command.

match [**not**] **called-party [regex** *regex***]**

no match [**not**] **match** [**not**] **called-party [regex** *regex***]**

Syntax Description

regex *regex*	Specifies to match on the regular expression.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to configure a match condition for the called party in an H.323 inspection class map:

```
hostname(config-cmap)# match called-party regex caller1
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
match any	Includes all traffic in the class map.
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

match calling-party

To configure a match condition on the H.323 calling party, use the **match calling-party** command in policy-map configuration mode. To disable this feature, use the **no** form of this command.

match [**not**] **calling-party [regex** *regex***]**

no match [**not**] **match** [**not**] **calling-party [regex** *regex***]**

Syntax Description

regex *regex*	Specifies to match on the regular expression.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to configure a match condition for the calling party in an H.323 inspection class map:

```
hostname(config-cmap)# match calling-party regex caller1
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
match any	Includes all traffic in the class map.
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

match certificate

To configure a certificate match rule, use the **match certificate** command in crypto ca trustpoint configuration mode. To remove the rule from the configuration, use the **no** form of this command.

match certificate *map-name* **override ocsp [trustpoint** *trustpoint-name***]** *seq-num* **url** *URL*

no match certificate *map-name* **override ocsp**

Syntax Description

map-name	Specifies the name of the certificate map to match to this rule. You must configure the certificate map before configuring a match rule. The maximum length is 65 characters.
override ocsp	Specifies that the purpose of the rule is to override an OCSP URL in a certificate.
seq-num	Sets the priority for this match rule. The valid range is from 1 to 10000. The ASA evaluates the match rule with the lowest sequence number first, followed by higher numbers until it finds a match.
trustpoint	(Optional) Specifies using a trustpoint for verifying the OCSP responder certificate.
trustpoint-name	(Optional) Identifies the trustpoint to use with the override to validate responder certificates.
url	Specifies accessing a URL for OCSP revocation status.
URL	Identifies the URL to access for OCSP revocation status.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
crypto ca trustpoint configuration	•	•	•	•	•

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

During the PKI certificate validation process, the ASA checks certificate revocation status to maintain security by using either CRL checking or Online Certificate Status Protocol (OCSP). With CRL checking, the ASA retrieves, parses, and caches CRLs, which provide a complete list of revoked certificates. OCSP offers a more scalable method of checking revocation status bdecause OCSP localizes certificate status on a validation authority, which it queries for the status of a specific certificate.

Certificate match rules let you configure OCSP URL overrides, which specify a URL to check for revocation status, rather than the URL in the AIA field of the remote user certificate. Match rules also let you configure trustpoints to use to validate OCSP responder certificates, which let the ASA validate responder certificates from any CA, including self-signed certificates and certificates external to the validation path of the client certificate.

When configuring OCSP, be aware of the following requirements:

- You can configure multiple match rules within a trustpoint configuration, but you can have only one match rule for each crypto ca certificate map. You can, however, configure multiple crypto ca certificate maps and associate them with the same trustpoint.
- You must configure the certificate map before configuring a match rule.
- To configure a trustpoint to validate a self-signed OCSP responder certificates, you import the self-signed responder certificate into its own trustpoint as a trusted CA certificate. Then you configure the **match certificate** command in the client certificate validating trustpoint to use the trustpoint that contains the self-signed OCSP responder certificate to validate the responder certificate. The same applies for validating responder certificates external to the validation path of the client certificate.
- A trustpoint can validate both the client certificate and the responder certificate if the same CA issues both of them. But if different CAs issue the client and responder certificates, you need to configure two trustpoints, one trustpoint for each certificate.
- The OCSP server (responder) certificate typically signs the OCSP response. After receiving the response, the ASA tries to verify the responder certificate. The CA normally sets the lifetime of its OCSP responder certificate to a relatively short period to minimize the chance of it being compromised.The CA typically also includes an ocsp-no-check extension in the responder certificate indicating that this certificate does not need revocation status checking. But if this extension is not present, the ASA tries to check its revocation status using the same method specified in the trustpoint. If the responder certificate is not verifiable, revocation checks fails. To avoid this possibility, use the **revocation-check none** command when configuring the responder certificate validating trustpoint, and use the **revocation-check ocsp** command when configuring the client certificate.
- If the ASA does not find a match, it uses the URL specified in the **ocsp url** command. If you have not configured the **ocsp url** command, the ASA uses the AIA field of the remote user certificate. If the certificate does not have an AIA extension, revocation status checking fails.

Examples

The following example shows how to create a certificate match rule for a trustpoint called newtrust. The rule has a map name called mymap, a sequence number of 4, a trustpoint called mytrust, and specifies a URL of 10.22.184.22.

```
hostname(config)# crypto ca trustpoint newtrust
hostname(config-ca-trustpoint)# match certificate mymap override ocsp trustpoint mytrust 4
url 10.22.184.22
hostname(config-ca-trustpoint)#
```

The following example shows how to configure a crypto ca certificate map, and then a match certificate rule to identify a trustpoint that contains a CA certificate to validate the responder certificate. This certificate is necessary if the CA identified in the newtrust trustpoint does not issue an OCSP responder certificate.

Step 1 Configure the certificate map that identifies the client certificates to which the map rule applies. In this example, the name of the certificate map is mymap and the sequence number is 1. Any client certificate with a subject-name that contains a CN attribute equal to mycert matches the mymap entry.

```
hostname(config)# crypto ca certificate map mymap 1 subject-name attr cn eq mycert
hostname(config-ca-cert-map)# subject-name attr cn eq mycert
hostname(config-ca-cert-map)#
```

Step 2 Configure a trustpoint that contains the CA certificate to use to validate the OCSP responder certificate. In the case of self-signed certificates, this is the self-signed certificate itself, which is imported and locally trusted. You can also obtain a certificate for this purpose through external CA enrollment. When prompted to do so, paste in the CA certificate.

```
hostname(config-ca-cert-map)# exit
hostname(config)# crypto ca trustpoint mytrust
hostname(config-ca-trustpoint)# enroll terminal
hostname(config-ca-trustpoint)# crypto ca authenticate mytrust
Enter the base 64 encoded CA certificate.
End with the word "quit" on a line by itself

MIIBnjCCAQcCBEPOpG4wDQYJKoZIhvcNAQEEBQAwFzEVMBMGA1UEAxQMNjMuNjcu
NzIuMTg4MB4XDTA2MDExODIwMjYyMloXDTA5MDExNzIwMjYyMlowFzEVMBMGA1UE
AxQMNjMuNjcuNzIuMTg4MIGdMA0GCSqGSIb3DQEBAQUAA4GLADCBhwKBgQDnXUHv
7//x1xEAOYfUzJmH5sr/NuxAbA5gTUbYA3pcE0KZHt761N+/8xGxC3DIVB8u7T/b
v8RqzqpmZYguveV9cLQK5tsxqW3DysMU/4/qUGPfkVZ0iKPCgpIAWmq2ojhCFPyx
ywsDsjl6YamF8mpMoruvwOuaUOsAK6KO54vy0QIBAzANBgkqhkiG9w0BAQQFAAOB
gQCSOihb2NH6mga2eLqEsFP1oVbBteSkEAm+NRCDK7ud113D6UC01EgtkJ81QtCk
tvX2T2Y/5sdNW4gfueavbyqYDbk4yxCKaofPp1ffAD9rrUFQJM1uQX14wclPCcAN
e7kR+rscOKYBSgVHrseqdB8+6QW5NF7f2dd+tSMvHtUMNw==
quit
INFO: Certificate has the following attributes:
Fingerprint:     7100d897 05914652 25b2f0fc e773df42
Do you accept this certificate? [yes/no]: y
Trustpoint CA certificate accepted.

% Certificate successfully imported
```

Step 3 Configure the original trustpoint, newtrust, with OCSP as the revocation checking method. Then set a match rule that includes the certificate map, mymap, and the self-signed trustpoint, mytrust, configured in Step 2.

```
hostname(config)# crypto ca trustpoint newtrust
hostname(config-ca-trustpoint)# enroll terminal
hostname(config-ca-trustpoint)# crypto ca authenticate newtrust

Enter the base 64 encoded CA certificate.
End with the word "quit" on a line by itself
ywsDsjl6YamF8mpMoruvwOuaUOsAK6KO54vy0QIBAzANBgkqhkiG9w0BAQQFAAOB
gQCSOihb2NH6mga2eLqEsFP1oVbBteSkEAm+NRCDK7ud113D6UC01EgtkJ81QtCk
AxQMNjMuNjcuNzIuMTg4MIGdMA0GCSqGSIb3DQEBAQUAA4GLADCBhwKBgQDnXUHv
7//x1xEAOYfUzJmH5sr/NuxAbA5gTUbYA3pcE0KZHt761N+/8xGxC3DIVB8u7T/b
gQCSOihb2NH6mga2eLqEsFP1oVbBteSkEAm+NRCDK7ud113D6UC01EgtkJ81QtCk
tvX2T2Y/5sdNW4gfueavbyqYDbk4yxCKaofPp1ffAD9rrUFQJM1uQX14wclPCcAN
NzIuMTg4MB4XDTA2MDExODIwMjYyMloXDTA5MDExNzIwMjYyMlowFzEVMBMGA1UE
OPIBnjCCAQcCBEPOpG4wDQYJKoZIhvcNAQEEBQAwFzEVMBMGA1UEAxQMNjMuNjcu
e7kR+rscOKYBSgVHrseqdB8+6QW5NF7f2dd+tSMvHtUMNw==
quit
INFO: Certificate has the following attributes:
Fingerprint:     9508g897 82914638 435f9f0fc x9y2p42
Do you accept this certificate? [yes/no]: y
Trustpoint CA certificate accepted.
```

```
% Certificate successfully imported
hostname(config)# crypto ca trustpoint newtrust
hostname(config-ca-trustpoint)# revocation-check ocsp
hostname(config-ca-trustpoint)# match certificate mymap override ocsp trustpoint mytrust 4
url 10.22.184.22
```

Any connection that uses the newtrust trustpoint for client certificate authentication checks to see if the client certificate matches the attribute rules specified in the mymap certificate map. If so, the ASA accesses the OCSP responder at 10.22.184.22 for certificate revocation status, then then uses the mytrust trustpoint to validate the responder certificate.

Note The newtrust trustpoint is configured to perform revocation checking via OCSP for the client certificates. However, the mytrust trustpoint is configured for the default revocation-check method, which is none. As a result, no revocation checking is performed on the OCSP responder certificate.

Related Commands

Command	Description
crypto ca certificate map	Creates crypto ca certificate maps. Use this command in global configuration mode.
crypto ca trustpoint	Enters crypto ca trustpoint configuration mode. Use this command in global configuration mode.
ocsp disable-nonce	Disables the nonce extension of the OCSP request.
ocsp url	Specifies the OCSP server to use to check all certificates associated with a trustpoint.
revocation-check	Specifies the method(s) to use for revocation checking and the order in which to try them.

match certificate allow expired-certificate

To allow an administrator to exempt certain certificates from expiration checking, use the **match certificate allow expired-certificate** command in ca-trustpool configuration mode. To disable the exemption of certain certificates, use the **no** form of this command.

match certificate <map> allow expired-certificate

no match certificate <map> allow expired-certificate

Syntax Description

allow	Allows expired certificate to be accepted.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ca-trustpool configuration	•	•	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

The trustpool match commands leverage the certificate map objects to configure certificate specific exceptions or overrides to the global trustpool policy. The match rules are written relative to the certificate that is being validated.

Related Commands

Command	Description
match certificate skip revocation check	Exempts certain certificates from revocation checking.

match certificate skip revocation-check

To allow an administrator to exempt certain certificates from revocation checking, use the **match certificate skip revocation-check** command in ca-trustpool configuration mode. To disable the exemption from revocation checking, use the **no** form of this command.

match certificate map skip revocation-check

no match certificate map skip revocation-check

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ca-trustpool configuration	•	•	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

The trustpool match commands leverage the certificate map objects to configure certificate specific exceptions or overrides to the global trustpool policy. The match rules are written relative to the certificate that is being validated.

Examples

The following example shows skipping the validity check for the certificate with the Subject DN common name of “mycompany123.”

```
crypto ca certificate map mycompany 1
subject-name attr cn eq mycompany123
crypto ca trustpool policy
match certificate mycompany skip revocation-check
```

Related Commands

Command	Description
match certificate allow expired-certificate	Exempts certain certificates from expiration checking.

match cmd

To configure a match condition on the ESMTP command verb, use the **match cmd** command in policy-map configuration mode. To disable this feature, use the **no** form of this command.

match [**not**] **cmd** [**verb** *verb* | **line length gt** *bytes* | **RCPT count gt** *recipients_number*]

no match [**not**] **cmd** [**verb** *verb* | **line length gt** *bytes* | **RCPT count gt** *recipients_number*]

Syntax Description

verb *verb*	Specifies the ESMTP command verb.
line length gt *bytes*	Specifies the length of a line.
RCPT count gt *recipients_number*	Specifies the number of recipient email addresses.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to configure a match condition in an ESMTP inspection policy map for the verb (method) NOOP exchanged in the ESMTP transaction:

```
hostname(config-pmap)# match cmd verb NOOP
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
match any	Includes all traffic in the class map.
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

match default-inspection-traffic

To specify default traffic for the inspect commands in a class map, use the **match default-inspection-traffic** command in class-map configuration mode. To remove this specification, use the **no** form of this command.

match default-inspection-traffic

no match default-inspection-traffic

Syntax Description

This command has no arguments or keywords.

Defaults

See the Usage Guidelines section for the default traffic of each inspection.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class-map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **match** commands are used to identify the traffic included in the traffic class for a class map. They include different criteria to define the traffic included in a class-map. Define a traffic class using the **class-map** global configuration command as part of configuring a security feature using Modular Policy Framework. From class-map configuration mode, you can define the traffic to include in the class using the **match** command.

After a traffic class is applied to an interface, packets received on that interface are compared to the criteria defined by the **match** statements in the class map. If the packet matches the specified criteria, it is included in the traffic class and is subjected to any actions associated with that traffic class. Packets that do not match any of the criteria in any traffic class are assigned to the default traffic class.

Using the **match default-inspection-traffic** command, you can match default traffic for the individual **inspect** commands. The **match default-inspection-traffic** command can be used in conjunction with one other match command, which is typically an access-list in the form of **permit ip** *src-ip dst-ip*.

The rule for combining a second **match** command with the **match default-inspection-traffic** command is to specify the protocol and port information using the **match default-inspection-traffic** command and specify all other information (such as IP addresses) using the second **match** command. Any protocol or port information specified in the second **match** command is ignored with respect to the **inspect** commands.

For instance, port 65535 specified in the example below is ignored:

```
hostname(config)# class-map cmap
hostname(config-cmap)# match default-inspection-traffic
hostname(config-cmap)# match port 65535
```

Default traffic for inspections are as follows:

Inspection Type	Protocol Type	Source Port	Destination Port
ctiqbe	tcp	N/A	1748
dcerpc	tcp	N/A	135
dns	udp	53	53
ftp	tcp	N/A	21
gtp	udp	2123,3386	2123,3386
h323 h225	tcp	N/A	1720
h323 ras	udp	N/A	1718-1719
http	tcp	N/A	80
icmp	icmp	N/A	N/A
ils	tcp	N/A	389
im	tcp	N/A	1-65539
ipsec-pass-thru	udp	N/A	500
mgcp	udp	2427,2727	2427,2727
netbios	udp	137-138	N/A
rpc	udp	111	111
rsh	tcp	N/A	514
rtsp	tcp	N/A	554
sip	tcp,udp	N/A	5060
skinny	tcp	N/A	2000
smtp	tcp	N/A	25
sqlnet	tcp	N/A	1521
tftp	udp	N/A	69
xdmcp	udp	177	177

Examples

The following example shows how to define a traffic class using a class map and the **match default-inspection-traffic** command:

```
hostname(config)# class-map cmap
hostname(config-cmap)# match default-inspection-traffic
hostname(config-cmap)#
```

Related Commands

Command	Description
class-map	Applies a traffic class to an interface.
clear configure class-map	Removes all of the traffic map definitions.
match access-list	Identifies access list traffic within a class map.

Command	Description
match any	Includes all traffic in the class map.
show running-config class-map	Displays the information about the class map configuration.

match dns-class

To configure a match condition for the Domain System Class in a DNS Resource Record or Question section, use the **match dns-class** command in class-map or policy-map configuration mode. To remove a configured class, use the **no** form of this command.

match [**not**] **dns-class** {**eq** *c_well_known* | *c_val*} {**range** *c_val1 c_val2*}

no match [**not**] **dns-class** {**eq** *c_well_known* | *c_val*} {**range** *c_val1 c_val2*}

Syntax Description

eq	Specifies an exact match.
c_well_known	Specifies DNS class by well-known name, IN.
c_val	Specifies an arbitrary value in the DNS class field (0-65535).
range	Specifies a range.
c_val1 c_val2	Specifies values in a range match. Each value between 0 and 65535.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class-map or policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

By default, this command inspects all fields (questions and RRs) of a DNS message and matches the specified class. Both DNS query and response are examined.

The match can be narrowed down to the question portion of a DNS query by the following two commands: **match not header-flag QR** and **match question**.

This command can be configured within a DNS class map or policy map. Only one entry can be entered within a DNS class-map.

Examples

The following example shows how to configure a match condition for a DNS class in a DNS inspection policy map:

```
hostname(config)# policy-map type inspect dns preset_dns_map
hostname(config-pmap)# match dns-class eq IN
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
match any	Includes all traffic in the class map.
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

match dns-type

To configure a match condition for a DNS type, including Query type and RR type, use the **match dns-type** command in class-map or policy-map configuration mode. To remove a configured dns type, use the **no** form of this command.

match [**not**] **dns-type** {**eq** *t_well_known* | *t_val*} {**range** *t_val1 t_val2*}

no match [**not**] **dns-type** {**eq** *t_well_known* | *t_val*} {**range** *t_val1 t_val2*}

Syntax Description

eq	Specifies an exact match.
t_well_known	Specifies DNS type by well-known name: A, NS, CNAME, SOA, TSIG, IXFR, or AXFR.
t_val	Specifies an arbitrary value in the DNS type field (0-65535).
range	Specifies a range.
t_val1 t_val2	Specifies values in a range match. Each value between 0 and 65535.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class-map or policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

By default, this command inspects all sections of a DNS message (questions and RRs) and matches the specified type. Both DNS query and response are examined.

The match can be narrowed down to the question portion of a DNS query by the following two commands: **match not header-flag QR** and **match question**.

This command can be configured within a DNS class map or policy map. Only one entry can be entered within a DNS class-map.

Examples

The following example shows how to configure a match condition for a DNS type in a DNS inspection policy map:

```
hostname(config)# policy-map type inspect dns preset_dns_map
```

```
hostname(config-pmap)# match dns-type eq a
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
match any	Includes all traffic in the class map.
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

match domain-name

To configure a match condition for a DNS message domain name list, use the **match domain-name** command in class-map or policy-map configuration mode. To remove a configured section, use the **no** form of this command.

match [**not**] **domain-name regex** *regex_id*

match [**not**] **domain-name regex class** *class_id*

no match [**not**] **domain-name regex** *regex_id*

no match [**not**] **domain-name regex class** *class_id*

Syntax Description

regex	Specifies a regular expression.
regex_id	Specifies the regular expression ID.
class	Specifies the class map that contains multiple regular expression entries.
class_id	Specifies the regular expression class map ID.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class-map or policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command matches domain names in the DNS message against predefined list. Compressed domain names will be expanded before matching. The match condition can be narrowed down to a particular field in conjunction with other DNS **match** commands.

This command can be configured within a DNS class map or policy map. Only one entry can be entered within a DNS class-map.

Examples

The following example shows how to match the DNS domain name in a DNS inspection policy map:

```
hostname(config)# policy-map type inspect dns preset_dns_map
hostname(config-pmap)# match domain-name regex
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
match any	Includes all traffic in the class map.
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

match dscp

To identify the IETF-defined DSCP value (in an IP header) in a class map, use the **match dscp** command in class-map configuration mode. To remove this specification, use the **no** form of this command.

match dscp {*values*}

no match dscp {*values*}

Syntax Description

values	Specifies up to eight different the IETF-defined DSCP values in the IP header. Range is 0 to 63.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class-map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **match** commands are used to identify the traffic included in the traffic class for a class map. They include different criteria to define the traffic included in a class-map. Define a traffic class using the **class-map** global configuration command as part of configuring a security feature using Modular Policy Framework. From class-map configuration mode, you can define the traffic to include in the class using the **match** command.

After a traffic class is applied to an interface, packets received on that interface are compared to the criteria defined by the **match** statements in the class map. If the packet matches the specified criteria, it is included in the traffic class and is subjected to any actions associated with that traffic class. Packets that do not match any of the criteria in any traffic class are assigned to the default traffic class.

Using the **match dscp** command, you can match the IETF-defined DSCP values in the IP header.

Examples

The following example shows how to define a traffic class using a class map and the **match dscp** command:

```
hostname(config)# class-map cmap
hostname(config-cmap)# match dscp af43 cs1 ef
hostname(config-cmap)#
```

Related Commands

Command	Description
class-map	Applies a traffic class to an interface.
clear configure class-map	Removes all of the traffic map definitions.
match access-list	Identifies access list traffic within a class map.
match port	Specifies the TCP/UDP ports as the comparison criteria for packets received on that interface.
show running-config class-map	Displays the information about the class map configuration.

CHAPTER 33

match ehlo-reply-parameter through match question Commands

match ehlo-reply-parameter

To configure a match condition on the ESMTP ehlo reply parameter, use the **match ehlo-reply-parameter** command in policy-map configuration mode. To disable this feature, use the **no** form of this command.

match [**not**] **ehlo-reply-parameter** *parameter*

no match [**not**] **ehlo-reply-parameter** *parameter*

Syntax Description

parameter	Specifies the ehlo reply parameter.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to configure a match condition for an ehlo reply parameter in an ESMTP inspection policy map:

```
hostname(config)# policy-map type inspect esmtp esmtp_map
hostname(config-pmap)# match ehlo-reply-parameter auth
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
match any	Includes all traffic in the class map.
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

match filename

To configure a match condition for a filename for FTP transfer, use the **match filename** command in class-map or policy-map configuration mode. To remove the match condition, use the **no** form of this command.

match [**not**] **filename regex** [*regex_name* | **class** *regex_class_name*]

no match [**not**] **filename regex** [*regex_name* | **class** *regex_class_name*]

Syntax Description

regex_name	Specifies a regular expression.
class *regex_class_name*	Specifies a regular expression class map.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class-map or policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command can be configured in an FTP class map or policy map. Only one entry can be entered in a FTP class map.

Examples

The following example shows how to configure a match condition for an FTP transfer filename in an FTP inspection class map:

```
hostname(config)# class-map type inspect ftp match-all ftp_class1
hostname(config-cmap)# description Restrict FTP users ftp1, ftp2, and ftp3 from accessing
/root
hostname(config-cmap)# match username regex class ftp_regex_user
hostname(config-cmap)# match filename regex ftp-file
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
match any	Includes all traffic in the class map.
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

match filetype

To configure a match condition for a filetype for FTP transfer, use the **match filetype** command in class-map or policy-map configuration mode. To remove the match condtion, use the **no** form of this command.

match [**not**] **filetype regex** [*regex_name* | **class** *regex_class_name*]

no match [**not**] **filetype regex** [*regex_name* | **class** *regex_class_name*]

Syntax Description

regex_name	Specifies a regular expression.
class *regex_class_name*	Specifies a regular expression class map.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class-map or policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command can be configured in an FTP class map or policy map. Only one entry can be entered in a FTP class map.

Examples

The following example shows how to configure a match condition for an FTP transfer filetype in an FTP inspection policy map:

```
hostname(config-pmap)# match filetype class regex ftp-regex-filetype
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
match any	Includes all traffic in the class map.

Command	Description
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

match flow ip destination-address

To specify the flow IP destination address in a class map, use the **match flow ip destination-address** command in class-map configuration mode. To remove this specification, use the **no** form of this command.

match flow ip destination-address

no match flow ip destination-address

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class-map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **match** commands are used to identify the traffic included in the traffic class for a class map. They include different criteria to define the traffic included in a class-map. Define a traffic class using the **class-map** global configuration command as part of configuring a security feature using Modular Policy Framework. From class-map configuration mode, you can define the traffic to include in the class using the **match** command.

After a traffic class is applied to an interface, packets received on that interface are compared to the criteria defined by the **match** statements in the class map. If the packet matches the specified criteria, it is included in the traffic class and is subjected to any actions associated with that traffic class. Packets that do not match any of the criteria in any traffic class are assigned to the default traffic class.

To enable flow-based policy actions on a tunnel group, use the **match flow ip destination-address** and **match tunnel-group** commands with the **class-map**, **policy-map**, and **service-policy** commands. The criteria to define flow is the destination IP address. All traffic going to a unique IP destination address is considered a flow. Policy action is applied to each flow instead of the entire class of traffic. QoS action police is applied using the **match flow ip destination-address** command. Use **match tunnel-group** to police every tunnel within a tunnel group to a specified rate.

Examples

The following example shows how to enable flow-based policing within a tunnel group and limit each tunnel to a specified rate:

```
hostname(config)# class-map cmap
hostname(config-cmap)# match tunnel-group
hostname(config-cmap)# match flow ip destination-address
hostname(config-cmap)# exit
hostname(config)# policy-map pmap
hostname(config-pmap)# class cmap
hostname(config-pmap)# police 56000
hostname(config-pmap)# exit
hostname(config)# service-policy pmap global
hostname(config)#
```

Related Commands

Command	Description
class-map	Applies a traffic class to an interface.
clear configure class-map	Removes all of the traffic map definitions.
match access-list	Identifies access list traffic within a class map.
show running-config class-map	Displays the information about the class map configuration.
tunnel-group	Creates and manages the database of connection-specific records for VPN.

match header (policy-map type inspect esmtp)

To configure a match condition on the ESMTP header, use the **match header** command in policy-map type inspect esmtp configuration mode. To disable this feature, use the **no** form of this command.

match [**not**] **header [[length | line length] gt** *bytes* **| to-fields count gt** *to_fields_number*]

no match [**not**] **header [[length | line length] gt** *bytes* **| to-fields count gt** *to_fields_number*]

Syntax Description

length gt *bytes*	Specifies to match on the length of the ESMTP header message.
line length gt bytes	Specifies to match on the length of a line of an ESMTP header message.
to-fields count gt *to_fields_number*	Specifies to match on the number of To: fields.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Policy-map type inspect esmtp configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to configure a match condition for a header in an ESMTP inspection policy map:

```
hostname(config)# policy-map type inspect esmtp esmtp_map
hostname(config-pmap)# match header length gt 512
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
match any	Includes all traffic in the class map.

Command	Description
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

match header (policy-map type inspect ipv6)

To configure a match condition on the IPv6 header, use the **match header** command in policy-map type inspect ipv6 configuration mode. To disable this feature, use the **no** form of this command.

match [**not**] **header** {**ah** | **count gt** *number* | **destination-option** | **esp** | **fragment** | **hop-by-hop** | **routing-address count gt** *number* | **routing-type** {**eq** | **range**} *number*}

no match [**not**] **header** {**ah** | **count gt** *number* | **destination-option** | **esp** | **fragment** | **hop-by-hop** | **routing-address count gt** *number* | **routing-type** {**eq** | **range**} *number*}

Syntax Description

ah	Matches the IPv6 Authentication extension header
count gt *number*	Specifies the maximum number of IPv6 extension headers, from 0 to 255.
destination-option	Matches the IPv6 destination-option extension header.
esp	Matches the IPv6 Encapsulation Security Payload (ESP) extension header.
fragment	Matches the IPv6 fragment extension header.
hop-by-hop	Matches the IPv6 hop-by-hop extension header.
not	(Optional) Does not match the specified parameter.
routing-address count gt *number*	Sets the maximum number of IPv6 routing header type 0 addresses, greater than a number between 0 and 255.
routing-type {**eq** | **range**} *number*	Matches the IPv6 routing header type, from 0 to 255. For a range, separate values by a space, for example, **30 40**.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Policy-map type inspect ipv6 configuration	•	•	•	•	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

Specifies the headers you want to match. By default, the packet is logged (**log**); if you want to drop (and optionally also log) the packet, enter the **drop** and optional **log** commands in match configuration mode.

Re-enter the **match** command and optional **drop** action for each extension you want to match:

Examples

The following example creates an inspection policy map that will drop and log all IPv6 packets with the hop-by-hop, destination-option, routing-address, and routing type 0 headers:

```
policy-map type inspect ipv6 ipv6-pm
 parameters
 match header hop-by-hop
  drop log
 match header destination-option
  drop log
 match header routing-address count gt 0
  drop log
 match header routing-type eq 0
  drop log
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
match any	Includes all traffic in the class map.
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

match header-flag

To configure a match condition for a DNS header flag, use the **match header-flag** command in class-map or policy-map configuration mode. To remove a configured header flag, use the **no** form of this command.

match [**not**] **header-flag** [**eq**] {*f_well_known* | *f_value*}

no match [**not**] **header-flag** [**eq**] {*f_well_known* | *f_value*}

Syntax Description

eq	Specifies an exact match. If not configured, specifies a **match-all** bit mask match.
f_well_known	Specifies DNS header flag bits by well-known name. Multiple flag bits may be entered and logically OR'd. QR (Query, note: QR=1, indicating a DNS response) AA (Authoritative Answer) TC (TrunCation) RD (Recursion Desired) RA (Recursion Available)
f_value	Specifies an arbitrary 16-bit value in hexidecimal form.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Class-map or policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command can be configured in a DNS class map or policy map. Only one entry can be entered in a DNS class map.

Examples

The following example shows how to configure a match condition for a DNS header flag in a DNS inspection policy map:

```
hostname(config)# policy-map type inspect dns preset_dns_map
hostname(config-pmap)# match header-flag AA
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
match any	Includes all traffic in the class map.
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

match im-subscriber

To configure a match condition for a SIP IM subscriber, use the **match im-subscriber** command in class-map or policy-map configuration mode. To remove the match condtion, use the **no** form of this command.

match [**not**] **im-subscriber regex** [*regex_name* | **class** *regex_class_name*]

no match [**not**] **im-subscriber regex** [*regex_name* | **class** *regex_class_name*]

Syntax Description

regex_name	Specifies a regular expression.
class *regex_class_name*	Specifies a regular expression class map.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class-map or policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command can be configured in a SIP class map or policy map. Only one entry can be entered in a SIP class map.

Examples

The following example shows how to configure a match condition for a SIP IM subscriber in a SIP inspection class map:

```
hostname(config-cmap)# match im-subscriber regex class im_sender
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
match any	Includes all traffic in the class map.

Command	Description
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

match interface

To distribute any routes that have their next hop out one of the interfaces specified, use the **match interface** command in route-map configuration mode. To remove the match interface entry, use the **no** form of this command.

match interface *interface-name*

no match interface *interface-name*

Syntax Description

interface-name	Name of the interface (not the physical interface). Multiple interface names can be specified.

Defaults

No match interfaces are defined.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Route-map configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

An ellipsis (...) in the command syntax indicates that your command input can include multiple values for the interface-type interface-number arguments.

The **route-map global** configuration command and the **match** and **set** configuration commands allow you to define the conditions for redistributing routes from one routing protocol into another. Each **route-map** command has **match** and **set** commands that are associated with it. The **match** commands specify the match criteria—the conditions under which redistribution is allowed for the current **route-map** command. The **set** commands specify the set actions—the particular redistribution actions to perform if the criteria that is enforced by the **match** commands are met. The **no route-map** command deletes the route map.

The **match** route-map configuration command has multiple formats. You can give the **match** commands in any order. All **match** commands must “pass” to cause the route to be redistributed according to the set actions that are given with the **set** commands. The **no** forms of the **match** commands remove the specified match criteria. If there is more than one interface specified in the **match** command. then the **no match interface** *interface-name* can be used to remove a single interface.

A route map can have several parts. Any route that does not match at least one match clause relating to a **route-map** command is ignored. If you want to modify only some data, you must configure a second route map section and specify an explicit match.

Examples

The following example shows that the routes with their next hop outside is distributed:

```
hostname(config)# route-map name
hostname(config-route-map)# match interface outside
```

Related Commands

Command	Description
match ip next-hop	Distributes any routes that have a next-hop router address that is passed by one of the access lists specified.
match ip route-source	Redistributes routes that have been advertised by routers and access servers at the address that is specified by the access lists.
match metric	Redistributes routes with the metric specified.
route-map	Defines the conditions for redistributing routes from one routing protocol into another.
set metric	Specifies the metric value in the destination routing protocol for a route map.

match invalid-recipients

To configure a match condition on the ESMTP invalid recipient address, use the **match invalid-recipients** command in policy-map configuration mode. To disable this feature, use the **no** form of this command.

match [**not**] **invalid-recipients count gt** *number*

no match [**not**] **invalid-recipients count gt** *number*

Syntax Description

count gt *number*	Specifies to match on the invalid recipient number.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to configure a match condition for invalid recipients count in an ESMTP inspection policy map:

```
hostname(config)# policy-map type inspect esmtp esmtp_map
hostname(config-pmap)# match invalid-recipients count gt 1000
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
match any	Includes all traffic in the class map.
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

match ip address

To redistribute any routes that have a route address or match packet that is passed by one of the access lists specified, use the **match ip address** command in route-map configuration mode. To restore the default settings, use the **no** form of this command.

match ip address {*acl...*} **prefix-list**

no match ip address {*acl...*} **prefix-list**

Syntax Description

acl	Specifies the name of an access list. Multiple access lists can be specified.
prefix-list	Specifies the name of a match prefix list.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Route-map configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

The **route-map global** configuration command and the **match** and **set** configuration commands allow you to define the conditions for redistributing routes from one routing protocol into another. Each **route-map** command has **match** and **set** commands that are associated with it. The **match** commands specify the match criteria—the conditions under which redistribution is allowed for the current **route-map** command. The **set** commands specify the set actions—the particular redistribution actions to perform if the criteria that is enforced by the **match** commands are met. The **no route-map** command deletes the route map.

Examples

The following example shows how to redistribute internal routes:

```
hostname(config)# route-map name
hostname(config-route-map)# match ip address acl_dmz1 acl_dmz2
```

Related Commands

Command	Description
match interface	Distributes any routes that have their next hop out one of the interfaces specified,
match ip next-hop	Distributes any routes that have a next-hop router address that is passed by one of the access lists specified.
match ipv6 address	Distributes any routes that have an IPv6 route address or match packet that is passed by one of the access lists specified.
match metric	Redistributes routes with the metric specified.
route-map	Defines the conditions for redistributing routes from one routing protocol into another.
set metric	Specifies the metric value in the destination routing protocol for a route map.

match ipv6 address

To redistribute any routes that have an IPv6 route address or match packet that is passed by one of the access lists specified, use the **match ipv6 address** command in route-map configuration mode. To restore the default settings, use the **no** form of this command.

match ipv6 address {*acl...*} **prefix-list**

no match ipv6 address {*acl...*} **prefix-list**

Syntax Description

acl	Specifies the name of an access list. Multiple access lists can be specified.
prefix-list	Specifies the name of a match prefix list.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Route-map configuration	•	—	•	•	—

Command History

Release	Modification
9.1(2)	This command was introduced.

Usage Guidelines

The **route-map global** configuration command and the **match** and **set** configuration commands allow you to define the conditions for redistributing routes from one routing protocol into another. Each **route-map** command has **match** and **set** commands that are associated with it. The **match** commands specify the match criteria—the conditions under which redistribution is allowed for the current **route-map** command. The **set** commands specify the set actions—the particular redistribution actions to perform if the criteria that is enforced by the **match** commands are met. The **no route-map** command deletes the route map.

Examples

The following example shows how to redistribute internal routes: access-list acl_dmz1 extended permit ipv6 any <net> <mask>

```
hostname(config)# access-list acl_dmz1 extended permit ipv6 any <net> <mask>
hostname(config)# route-map name
hostname(config-route-map)# match ipv6 address acl_dmz1 acl_dmz2
```

Related Commands

Command	Description
match interface	Distributes any routes that have their next hop out one of the interfaces specified,
match ip address	Distributes any routes that have a route address or match packet that is passed by one of the access lists specified.
match ip next-hop	Distributes any routes that have a next-hop router address that is passed by one of the access lists specified.
match metric	Redistributes routes with the metric specified.
route-map	Defines the conditions for redistributing routes from one routing protocol into another.
set metric	Specifies the metric value in the destination routing protocol for a route map.

match ip next-hop

To redistribute any routes that have a next-hop router address that is passed by one of the access lists specified, use the **match ip next-hop** command in route-map configuration mode. To remove the next-hop entry, use the **no** form of this command.

match ip next-hop {*acl...*} | **prefix-list** *prefix_list*

no match ip next-hop {*acl...*} | **prefix-list** *prefix_list*

Syntax Description

acl	Name of an ACL. Multiple ACLs can be specified.
prefix-list *prefix_list*	Name of prefix list.

Defaults

Routes are distributed freely, without being required to match a next-hop address.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Route-map configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

An ellipsis (...) in the command syntax indicates that your command input can include multiple values for the *acl* argument.

The **route-map global** configuration command and the **match** and **set** configuration commands allow you to define the conditions for redistributing routes from one routing protocol into another. Each **route-map** command has **match** and **set** commands that are associated with it. The **match** commands specify the match criteria—the conditions under which redistribution is allowed for the current **route-map** command. The **set** commands specify the set actions—the particular redistribution actions to perform if the criteria that is enforced by the **match** commands are met. The **no route-map** command deletes the route map.

The **match** route-map configuration command has multiple formats. You can enter the **match** commands in any order. All **match** commands must "pass" to cause the route to be redistributed according to the set actions given with the **set** commands. The **no** forms of the **match** commands remove the specified match criteria.

When you are passing routes through a route map, a route map can have several parts. Any route that does not match at least one match clause relating to a **route-map** command is ignored. To modify only some data, you must configure a second route map section and specify an explicit match.

Examples

The following example shows how to distribute routes that have a next-hop router address passed by access list acl_dmz1 or acl_dmz2:

```
hostname(config)# route-map name
hostname(config-route-map)# match ip next-hop acl_dmz1 acl_dmz2
```

Related Commands

Command	Description
match interface	Distributes distribute any routes that have their next hop out one of the interfaces specified.
match ip next-hop	Distributes any routes that have a next-hop router address that is passed by one of the access lists specified.
match metric	Redistributes routes with the metric specified.
route-map	Defines the conditions for redistributing routes from one routing protocol into another.
set metric	Specifies the metric value in the destination routing protocol for a route map.

match ip route-source

To redistribute routes that have been advertised by routers and access servers at the address that is specified by the ACLs, use the **match ip route-source** command in the route-map configuration mode. To remove the next-hop entry, use the **no** form of this command.

match ip route-source {*acl...*} | **prefix-list** *prefix_list*

no match ip route-source {*acl...*}

Syntax Description

acl	Name of an ACL. Multiple ACLs can be specified.
prefix_list	Name of prefix list.

Defaults

No filtering on a route source.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Route-map configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

An ellipsis (...) in the command syntax indicates that your command input can include multiple values for the access-list-name argument.

The **route-map global** configuration command and the **match** and **set** configuration commands allow you to define the conditions for redistributing routes from one routing protocol into another. Each **route-map** command has **match** and **set** commands that are associated with it. The **match** commands specify the match criteria—the conditions under which redistribution is allowed for the current **route-map** command. The **set** commands specify the set actions—the particular redistribution actions to perform if the criteria that is enforced by the **match** commands are met. The **no route-map** command deletes the route map.

The **match** route-map configuration command has multiple formats. You can enter the **match** commands in any order. All **match** commands must "pass" to cause the route to be redistributed according to the set actions given with the **set** commands. The **no** forms of the **match** commands remove the specified match criteria.

A route map can have several parts. Any route that does not match at least one match clause relating to a **route-map** command is ignored. To modify only some data, you must configure a second route map section and specify an explicit match. The next-hop and source-router address of the route are not the same in some situations.

Examples

The following example shows how to distribute routes that have been advertised by routers and access servers at the addresses specified by ACLs acl_dmz1 and acl_dmz2:

```
hostname(config)# route-map name
hostname(config-route-map)# match ip route-source acl_dmz1 acl_dmz2
```

Related Commands

Command	Description
match interface	Distributes distribute any routes that have their next hop out one of the interfaces specified.
match ip next-hop	Distributes any routes that have a next-hop router address that is passed by one of the ACLs specified.
match metric	Redistributes routes with the metric specified.
route-map	Defines the conditions for redistributing routes from one routing protocol into another.
set metric	Specifies the metric value in the destination routing protocol for a route map.

match login-name

To configure a match condition for a client login name for instant messaging, use the **match login-name** command in class-map or policy-map configuration mode. To remove the match condition, use the **no** form of this command.

match [**not**] **login-name regex** [*regex_name* | **class** *regex_class_name*]

no match [**not**] **login-name regex** [*regex_name* | **class** *regex_class_name*]

Syntax Description

regex_name	Specifies a regular expression.
class *regex_class_name*	Specifies a regular expression class map.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Class-map or policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command can be configured in an IM class map or policy map. Only one entry can be entered in a IM class map.

Examples

The following example shows how to configure a match condition for a client login name in an instant messaging class map:

```
hostname(config)# class-map type inspect im im_class
hostname(config-cmap)# match login-name regex login
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.

Command	Description
match any	Includes all traffic in the class map.
show running-config class-map	Displays the information about the class map configuration.

match media-type

To configure a match condition on the H.323 media type, use the **match media-type** command in policy-map configuration mode. To disable this feature, use the **no** form of this command.

match [**not**] **media-type [audio | data | video]**

no match [**not**] **media-type [audio | data | video]**

Syntax Description

audio	Specifies to match audio media type.
data	Specifies to match data media type.
video	Specifies to match video media type.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to configure a match condition for audio media type in an H.323 inspection class map:

```
hostname(config-cmap)# match media-type audio
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
match any	Includes all traffic in the class map.
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

match message id

To configure a match condition for a GTP message ID, use the **match message id** command in class-map or policy-map configuration mode. To remove the match condition, use the **no** form of this command.

match [**not**] **message id** [*message_id* | **range** *lower_range upper_range*]

no match [**not**] **message id** [*message_id* | **range** *lower_range upper_range*]

Syntax Description

message_id	Specifies an alphanumeric identifier between 1 and 255.
range *lower_range upper_range*	Specifies a lower and upper range of IDs.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class-map or policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command can be configured in a GTP class map or policy map. Only one entry can be entered in a GTP class map.

Examples

The following example shows how to configure a match condition for a message ID in a GTP inspection class map:

```
hostname(config-cmap)# match message id 33
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
match any	Includes all traffic in the class map.

Command	Description
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

match message length

To configure a match condition for a GTP message ID, use the **match message length** command in class-map or policy-map configuration mode. To remove the match condition, use the **no** form of this command.

match [**not**] **message length min** *min_length* **max** *max_length*

no match [**not**] **message length min** *min_length* **max** *max_length*

Syntax Description

min *min_length*	Specifies a minimum message ID length. Value is between 1 and 65536.
max *max_length*	Specifies a maximum message ID length. Value is between 1 and 65536.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Class-map or policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command can be configured in a GTP class map or policy map. Only one entry can be entered in a GTP class map.

Examples

The following example shows how to configure a match condition for a message length in a GTP inspection class map:

```
hostname(config-cmap)# match message length min 8 max 200
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
match any	Includes all traffic in the class map.

Command	Description
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

match message-path

To configure a match condition for the path taken by a SIP message as specified in the Via header field, use the **match message-path** command in class-map or policy-map configuration mode. To remove the match condtion, use the **no** form of this command.

match [**not**] **message-path regex** [*regex_name* | **class** *regex_class_name*]

no match [**not**] **message-path regex** [*regex_name* | **class** *regex_class_name*]

Syntax Description

regex_name	Specifies a regular expression.
class *regex_class_name*	Specifies a regular expression class map.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class-map or policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command can be configured in a SIP class map or policy map. Only one entry can be entered in a SIP class map.

Examples

The following example shows how to configure a match condition for the path taken by a SIP message in a SIP inspection class map:

```
hostname(config-cmap)# match message-path regex class sip_message
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
match any	Includes all traffic in the class map.

Command	Description
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

match metric

To redistribute routes with the metric specified, use the **match metric** command in route-map configuration mode. To remove the entry, use the **no** form of this command.

match metric *number*

no match metric *number*

Syntax Description

number	Route metric, which can be an IGRP five-part metric; valid values are from 0 to 4294967295.

Defaults

No filtering on a metric value.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Route-map configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

The **route-map global** configuration command and the **match** and **set** configuration commands allow you to define the conditions for redistributing routes from one routing protocol into another. Each **route-map** command has **match** and **set** commands that are associated with it. The **match** commands specify the match criteria—the conditions under which redistribution is allowed for the current **route-map** command. The **set** commands specify the set actions—the particular redistribution actions to perform if the criteria that is enforced by the **match** commands are met. The **no route-map** command deletes the route map.

The **match** route-map configuration command has multiple formats. The **match** commands can be given in any order, and all **match** commands must "pass" to cause the route to be redistributed according to the set actions given with the **set** commands. The **no** forms of the **match** commands remove the specified match criteria.

A route map can have several parts. Any route that does not match at least one match clause relating to a **route-map** command is ignored. To modify only some data, you must configure a second route map section and specify an explicit match.

Examples

The following example shows how to redistribute routes with the metric 5:

```
hostname(config)# route-map name
hostname(config-route-map)# match metric 5
```

Related Commands

Command	Description
match interface	Distributes distribute any routes that have their next hop out one of the interfaces specified,
match ip next-hop	Distributes any routes that have a next-hop router address that is passed by one of the access lists specified.
route-map	Defines the conditions for redistributing routes from one routing protocol into another.
set metric	Specifies the metric value in the destination routing protocol for a route map.

match mime

To configure a match condition on the ESMTP mime encoding type, mime filename length, or mime file type, use the **match mime** command in policy-map configuration mode. To disable this feature, use the **no** form of this command.

match [**not**] **mime [encoding** *type* **| filename length gt** *bytes* **| filetype** *regex***]**

no match [**not**] **mime [encoding** *type* **| filename length gt** *bytes* **| filetype** *regex***]**

Syntax Description

encoding *type*	Specifies to match on the encoding type.
filename length gt *bytes*	Specifies to match on the filename length.
filetype *regex*	Specifies to match on the file type.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to configure a match condition for a mime filename length in an ESMTP inspection policy map:

```
hostname(config)# policy-map type inspect esmtp esmtp_map
hostname(config-pmap)# match mime filename length gt 255
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
match any	Includes all traffic in the class map.

Command	Description
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

match peer-ip-address

To configure a match condition for the peer IP address for instant messaging, use the **match peer-ip-address** command in class-map or policy-map configuration mode. To remove the match condition, use the **no** form of this command.

match [**not**] **peer-ip-address** *ip_address ip_address_mask*

no match [**not**] **peer-ip-address** *ip_address ip_address_mask*

Syntax Description

ip_address	Specifies a hostname or IP address of the client or server.
ip_address_mask	Specifies the netmask for the client or server IP address.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class-map or policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command can be configured in an IM class map or policy map. Only one entry can be entered in a IM class map.

Examples

The following example shows how to configure a match condition for the peer IP address in an instant messaging class map:

```
hostname(config)# class-map type inspect im im_class
hostname(config-cmap)# match peer-ip-address 10.1.1.0 255.255.255.0
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.

Command	Description
match any	Includes all traffic in the class map.
show running-config class-map	Displays the information about the class map configuration.

match peer-login-name

To configure a match condition for the peer login name for instant messaging, use the **match peer-login-name** command in class-map or policy-map configuration mode. To remove the match condition, use the **no** form of this command.

match [**not**] **peer-login-name regex** [*regex_name* | **class** *regex_class_name*]

no match [**not**] **peer-login-name regex** [*regex_name* | **class** *regex_class_name*]

Syntax Description

regex_name	Specifies a regular expression.
class *regex_class_name*	Specifies a regular expression class map.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class-map or policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command can be configured in an IM class map or policy map. Only one entry can be entered in a IM class map.

Examples

The following example shows how to configure a match condition for the peer login name in an instant messaging class map:

```
hostname(config)# class-map type inspect im im_class
hostname(config-cmap)# match peer-login-name regex peerlogin
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.

Command	Description
match any	Includes all traffic in the class map.
show running-config class-map	Displays the information about the class map configuration.

match port

When using the Modular Policy Framework, match the TCP or UDP ports to which you want to apply actions by using the **match port** command in class-map configuration mode. To remove the **match port** command, use the **no** form of this command.

match port {**tcp** | **udp**} {**eq** *port* | **range** *beg_port end_port*}

no match port {**tcp** | **udp**} {**eq** *port* | **range** *beg_port end_port*}

Syntax Description

eq *port*	Specifies a single port name or number.
range *beg_port end_port*	Specifies beginning and ending port range values between 1 and 65535.
tcp	Specifies a TCP port.
udp	Specifies a UDP port.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class-map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Configuring Modular Policy Framework consists of four tasks:

1. Identify the Layer 3 and 4 traffic to which you want to apply actions using the **class-map** or **class-map type management** command.

   After you enter the **class-map** command, you can enter the **matchport** command to identify the traffic. Alternatively, you can enter a different type of **match** command, such as the **match access-list** command (the **class-map type management** command only allows the match port command). You can only include one **match port** command in the class map, and you cannot combine it with other types of **match** commands.

2. (Application inspection only) Define special actions for application inspection traffic using the **policy-map type inspect** command.
3. Apply actions to the Layer 3 and 4 traffic using the **policy-map** command.
4. Activate the actions on an interface using the **service-policy** command.

Examples

The following example shows how to define a traffic class using a class map and the **match port** command:

```
hostname(config)# class-map cmap
hostname(config-cmap)# match port tcp eq 8080
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
match access-list	Matches traffic according to an access list.
match any	Includes all traffic in the class map.
show running-config class-map	Displays the information about the class map configuration.

match precedence

To specify a precedence value in a class map, use the **match precedence** command in class-map configuration mode. To remove this specification, use the **no** form of this command.

match precedence *value*

no match precedence *value*

Syntax Description

value	Specifies up to four precedence values separated by a space. Range is 0 to 7.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class-map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **match** commands are used to identify the traffic included in the traffic class for a class map. They include different criteria to define the traffic included in a class-map. Define a traffic class using the **class-map** global configuration command as part of configuring a security feature using Modular Policy Framework. From class-map configuration mode, you can define the traffic to include in the class using the **match** command.

After a traffic class is applied to an interface, packets received on that interface are compared to the criteria defined by the **match** statements in the class map. If the packet matches the specified criteria, it is included in the traffic class and is subjected to any actions associated with that traffic class. Packets that do not match any of the criteria in any traffic class are assigned to the default traffic class.

Use the **match precedence** command to specify the value represented by the TOS byte in the IP header.

Examples

The following example shows how to define a traffic class using a class map and the **match precedence** command:

```
hostname(config)# class-map cmap
hostname(config-cmap)# match precedence 1
hostname(config-cmap)#
```

Related Commands

Command	Description
class-map	Applies a traffic class to an interface.
clear configure class-map	Removes all of the traffic map definitions.
match access-list	Identifies access list traffic within a class map.
match any	Includes all traffic in the class map.
show running-config class-map	Displays the information about the class map configuration.

match protocol

To configure a match condition for a specific instant messaging protocol, such as MSN or Yahoo, use the **match protocol** command in class-map or policy-map configuration mode. To remove the match condition, use the **no** form of this command.

match [**not**] **protocol** {**msn-im** | **yahoo-im**}

no match [**not**] **protocol** {**msn-im** | **yahoo-im**}

Syntax Description

msn-im	Specifies to match the MSN instant messaging protocol.
yahoo-im	Specifies to match the Yahoo instant messaging protocol.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class-map or policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command can be configured in an IM class map or policy map. Only one entry can be entered in a IM class map.

Examples

The following example shows how to configure a match condition for the Yahoo instant messaging protocol in an instant messaging class map:

```
hostname(config)# class-map type inspect im im_class
hostname(config-cmap)# match protocol yahoo-im
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.

Command	Description
match any	Includes all traffic in the class map.
show running-config class-map	Displays the information about the class map configuration.

match question

To configure a match condition for a DNS question or resource record, use the **match question** command in class-map or policy-map configuration mode. To remove a configured section, use the **no** form of this command.

match {**question** | {**resource-record answer** | **authority** | **additional**}}

no match {**question** | {**resource-record answer** | **authority** | **additional**}}

Syntax Description

question	Specifies the question portion of a DNS message.
resource-record	Specifies the resource record portion of a DNS message.
answer	Specifies the Answer RR section.
authority	Specifies the Authority RR section.
additional	Specifies the Additional RR section.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Class-map or policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

By default, this command inspects the DNS header and matches the specified field. It can be used in conjunction with other DNS **match** commands to define inspection of a particular question or RR type..

This command can be configured within a DNS class map or policy map. Only one entry can be entered within a DNS class-map.

Examples

The following example shows how to configure a match condition for a DNS question in a DNS inspection policy map:

```
hostname(config)# policy-map type inspect dns preset_dns_map
hostname(config-pmap)# match question
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
match any	Includes all traffic in the class map.
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

CHAPTER 34

match regex through message-length Commands

match regex

To identify a regular expression in a regular expression class map, use the **match regex** command in class-map type regex configuration mode. To remove the regular expression from the class map, use the **no** form of this command.

match regex *name*

no match regex *name*

Syntax Description

name	The name of the regular expression you added with the **regex** command.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class-map type regex configuration	•	•	•	—	•

Command History

Release	Modification
7.0(2)	We introduced this command.

Usage Guidelines

The **regex** command can be used for various features that require text matching. You can group regular expressions in a regular expression class map using the **class-map type regex** command and then multiple **match regex** commands.

For example, you can configure special actions for application inspection using an inspection policy map (see the **policy map type inspect** command). In the inspection policy map, you can identify the traffic you want to act upon by creating an inspection class map containing one or more **match** commands or you can use **match** commands directly in the inspection policy map. Some **match** commands let you identify text in a packet using a regular expression; for example, you can match URL strings inside HTTP packets.

Examples

The following is an example of an HTTP inspection policy map and the related class maps. This policy map is activated by the Layer 3/4 policy map, which is enabled by the service policy.

```
hostname(config)# regex url_example example\.com
hostname(config)# regex url_example2 example2\.com
hostname(config)# class-map type regex match-any URLs
hostname(config-cmap)# match regex url_example
hostname(config-cmap)# match regex url_example2
```

```
hostname(config-cmap)# class-map type inspect http match-all http-traffic
hostname(config-cmap)# match req-resp content-type mismatch
hostname(config-cmap)# match request body length gt 1000
hostname(config-cmap)# match not request uri regex class URLs

hostname(config-cmap)# policy-map type inspect http http-map1
hostname(config-pmap)# class http-traffic
hostname(config-pmap-c)# drop-connection log
hostname(config-pmap-c)# match req-resp content-type mismatch
hostname(config-pmap-c)# reset log
hostname(config-pmap-c)# parameters
hostname(config-pmap-p)# protocol-violation action log
hostname(config-pmap-p)# policy-map test
hostname(config-pmap)# class test [a Layer 3/4 class map not shown]
hostname(config-pmap-c)# inspect http http-map1
hostname(config-pmap-c)# service-policy test interface outside
```

Related Commands

Command	Description
class-map type regex	Creates a regular expression class map.
regex	Adds a regular expression.
test regex	Tests a regular expression.

match req-resp

To configure a match condition for both HTTP requests and responses, use the **match req-resp** command in policy-map configuration mode. To disable this feature, use the **no** form of this command.

match [**not**] **req-resp content-type mismatch**

no match [**not**] **req-resp content-type mismatch**

Syntax Description

content-type	Specifies to match the content type in the response to the accept types in the request.
mismatch	Specifies that the content type field in the response must match one of the mime types in the accept field of the request.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command enables the following checks:

- Verifies that the value of the header content-type is in the internal list of supported content types,
- Verifies that the header content-type matches the actual content in the data or entity body portion of the message.
- Verifies the content type field in the HTTP response matches the **accept** field in the corresponding HTTP request message.

If the message fails any of the above checks, the ASA takes the configured action.

The following is the list of supported content types.

audio/* |	audio/basic |	video/x-msvideo
audio/mpeg |	audio/x-adpcm |	audio/midi
audio/x-ogg |	audio/x-wav |	audio/x-aiff |
application/octet-stream	application/pdf	application/msword
application/vnd.ms-excel	application/vnd.ms-powerpoint	application/postscript
application/x-java-arching	application/x-msn-messenger	application/x-gzip
image |	application/x-java-xm	application/zip
image/jpeg |	image/cgf |	image/gif |
image/x-3ds |	image/png |	image/tiff |
image/x-portable-bitmap |	image/x-bitmap |	image/x-niff |
text/* |	image/x-portable-greymap |	image/x-xpm |
text/plain |	text/css	text/html |
text/xmcd	text/richtext |	text/sgml
video/-flc	text/xml	video/*
video/sgi	video/mpeg	video/quicktime
video/x-mng	video/x-avi	video/x-fli

Some content-types in this list may not have a corresponding regular expression (magic number) so they cannot be verified in the body portion of the message. When this case occurs, the HTTP message will be allowed.

Examples

The following example shows how to restrict HTTP traffic based on the content type of the HTTP message in an HTTP policy map:

```
hostname(config)# policy-map type inspect http http_map
hostname(config-pmap)# match req-resp content-type mismatch
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
show running-config class-map	Displays the information about the class map configuration.

match request-command

To restrict specific FTP commands, use the **match request-command** command in class-map or policy-map configuration mode. To remove the match condition, use the **no** form of this command.

match [**not**] **request-command** *ftp_command* [*ftp_command...*]

no match [**not**] **request-command** *ftp_command* [*ftp_command...*]

Syntax Description

ftp_command	Specifies one or more FTP commands to restrict.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class-map or policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command can be configured in an FTP class map or policy map. Only one entry can be entered in a FTP class map.

Examples

The following example shows how to configure a match condition for a specific FTP command in an FTP inspection policy map:

```
hostname(config)# policy-map type inspect ftp ftp_map1
hostname(config-pmap)# match request-command stou
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
match any	Includes all traffic in the class map.

Command	Description
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

match request-method

To configure a match condition for the SIP method type, use the **match request-method** command in class-map or policy-map configuration mode. To remove the match condtion, use the **no** form of this command.

match [**not**] **request-method** *method_type*

no match [**not**] **request-method** *method_type*

Syntax Description

method_type	Specifies a method type according to RFC 3261 and supported extensions. Supported method types include: ack, bye, cancel, info, invite, message, notify, options, prack, refer, register, subscribe, unknown, update.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class-map or policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command can be configured in a SIP class map or policy map. Only one entry can be entered in a SIP class map.

Examples

The following example shows how to configure a match condition for the path taken by a SIP message in a SIP inspection class map:

```
hostname(config-cmap)# match request-method ack
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.

Command	Description
match any	Includes all traffic in the class map.
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

match request method

To configure a match condition for HTTP requests, use the **match request method** command in policy-map configuration mode. To disable this feature, use the **no** form of this command.

match [**not**] **request** {*built-in-regex* | **regex** {*regex_name* | **class** *class_map_name*}}

no match [**not**] **request** {*built-in-regex* | **regex** {*regex_name* | **class** *class_map_name*}}

Syntax Description

built-in-regex	Specifies the built-in regex for content type, method, or transfer encoding.
class *class_map name*	Specifies the name of the class map of regex type.
regex *regex_name*	Specifies the name of the regular expression configured using the **regex** command.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

Table 34-1 Built-in Regex Values

bcopy	bdelete	bmove	bpropfind
bproppatch	connect	copy	delete
edit	get	getattribute	getattributenames
getproperties	head	index	lock
mkcol	mkdir	move	notify
options	poll	post	propfind
proppatch	put	revadd	revlabel
revlog	revnum	save	search
setattribute	startrev	stoprev	subscribe
trace	unedit	unlock	unsubscribe

Examples

The following example shows how to define an HTTP inspection policy map that will allow and log any HTTP connection that attempts to access "www\.example.com/.*\.asp" or "www\example[0-9][0-9]\.com" with methods "GET" or "PUT." All other URL/Method combinations will be silently allowed:

```
hostname(config)# regex url1 "www\.example.com/.*\.asp
hostname(config)# regex url2 "www\.example[0-9][0-9]\.com"
hostname(config)# regex get "GET"
hostname(config)# regex put "PUT"
hostname(config)# class-map type regex match-any url_to_log
hostname(config-cmap)# match regex url1
hostname(config-cmap)# match regex url2
hostname(config-cmap)# exit
hostname(config)# class-map type regex match-any methods_to_log
hostname(config-cmap)# match regex get
hostname(config-cmap)# match regex put
hostname(config-cmap)# exit
hostname(config)# class-map type inspect http http_url_policy
hostname(config-cmap)# match request uri regex class url_to_log
hostname(config-cmap)# match request method regex class methods_to_log
hostname(config-cmap)# exit
hostname(config)# policy-map type inspect http http_policy
hostname(config-pmap)# class http_url_policy
hostname(config-pmap-c)# log
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
show running-config class-map	Displays the information about the class map configuration.

match route-type

To redistribute routes of the specified type, use the **match route-type** command in route-map configuration mode. To remove the route type entry, use the **no** form of this command.

match route-type {**local** | **internal** | {**external** [**type-1** | **type-2**]} | {**nssa-external** [**type-1** | **type-2**]}}

no match route-type {**local** | **internal** | {**external** [**type-1** | **type-2**]} | {**nssa-external** [**type-1** | **type-2**]}}

Syntax Description

external	OSPF external routes or EIGRP external routes.
internal	OSPF intra-area and interarea routes or EIGRP internal routes.
local	Locally generated BGP routes.
nssa-external	Specifies the external NSSA.
type-1	(Optional) Specifies the route type 1.
type-2	(Optional) Specifies the route type 2.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Route-map configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

The **route-map** global configuration command and the **match** and **set** configuration commands allow you to define the conditions for redistributing routes from one routing protocol into another. Each **route-map** command has **match** and **set** commands that are associated with it. The **match** commands specify the match criteria—the conditions under which redistribution is allowed for the current **route-map** command. The **set** commands specify the set actions—the particular redistribution actions to perform if the criteria that is enforced by the **match** commands are met. The **no route-map** command deletes the route map.

The **match** route-map configuration command has multiple formats. You can enter the **match** commands in any order. All **match** commands must "pass" to cause the route to be redistributed according to the set actions given with the **set** commands. The **no** forms of the **match** commands remove the specified match criteria.

A route map can have several parts. Any route that does not match at least one match clause relating to a **route-map** command is ignored. To modify only some data, you must configure a second route map section and specify an explicit match.

For OSPF, the **external type-1** keywords match only type 1 external routes and the **external type-2** keywords match only type 2 external routes.

Examples

The following example shows how to redistribute internal routes:

```
hostname(config)# route-map name
hostname(config-route-map)# match route-type internal
```

Related Commands

Command	Description
match interface	Distributes distribute any routes that have their next hop out one of the interfaces specified,
match ip next-hop	Distributes any routes that have a next-hop router address that is passed by one of the access lists specified.
match metric	Redistributes routes with the metric specified.
route-map	Defines the conditions for redistributing routes from one routing protocol into another.
set metric	Specifies the metric value in the destination routing protocol for a route map.

match rtp

To specify a UDP port range of even-number ports in a class map, use the **match rtp** command in class-map configuration mode. To remove this specification, use the **no** form of this command.

match rtp *starting_port range*

no match rtp *starting_port range*

Syntax Description

starting_port	Specifies lower bound of even-number UDP destination port. Range is 2000-65535
range	Specifies range of RTP ports. Range is 0-16383.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class-map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **match** commands are used to identify the traffic included in the traffic class for a class map. They include different criteria to define the traffic included in a class-map. Define a traffic class using the **class-map** global configuration command as part of configuring a security feature using Modular Policy Framework. From class-map configuration mode, you can define the traffic to include in the class using the **match** command.

After a traffic class is applied to an interface, packets received on that interface are compared to the criteria defined by the **match** statements in the class map. If the packet matches the specified criteria, it is included in the traffic class and is subjected to any actions associated with that traffic class. Packets that do not match any of the criteria in any traffic class are assigned to the default traffic class.

Use the **match rtp** command to match RTP ports (even UDP port numbers between the *starting_port* and the *starting_port* plus the *range*).

Examples

The following example shows how to define a traffic class using a class map and the **match rtp** command:

```
hostname(config)# class-map cmap
```

```
hostname(config-cmap)# match rtp 20000 100
hostname(config-cmap)#
```

Related Commands

Command	Description
class-map	Applies a traffic class to an interface.
clear configure class-map	Removes all of the traffic map definitions.
match access-list	Identifies access list traffic within a class map.
match any	Includes all traffic in the class map.
show running-config class-map	Displays the information about the class map configuration.

match sender-address

To configure a match condition on the ESMTP sender e-mail address, use the **match sender-address** command in policy-map configuration mode. To disable this feature, use the **no** form of this command.

match [**not**] **sender-address [length gt** *bytes* **| regex** *regex***]**

no match [**not**] **sender-address [length gt** *bytes* **| regex** *regex***]**

Syntax Description

length gt *bytes*	Specifies to match on the sender e-mail address length.
regex *regex*	Specifies to match on the regular expression.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to configure a match condition for the sender email address of length greater than 320 characters in an ESMTP inspection policy map:

```
hostname(config-pmap)# match sender-address length gt 320
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
match any	Includes all traffic in the class map.
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

match server

To configure a match condition for an FTP server, use the **match server** command in class-map or policy-map configuration mode. To remove the match condition, use the **no** form of this command.

match [**not**] **server regex** [*regex_name* | **class** *regex_class_name*]

no match [**not**] **server regex** [*regex_name* | **class** *regex_class_name*]

Syntax Description

regex_name	Specifies a regular expression.
class *regex_class_name*	Specifies a regular expression class map.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class-map or policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command can be configured in an FTP class map or policy map. Only one entry can be entered in a FTP class map.

The ASA matches the server name based using the initial 220 server message that is displayed above the login prompt when connecting to an FTP server. The 220 server message might contain multiple lines. The server match is not based on the FQDN of the server name resolved through DNS.

Examples

The following example shows how to configure a match condition for an FTP server in an FTP inspection policy map:

```
hostname(config-pmap)# match server class regex ftp-server
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
match any	Includes all traffic in the class map.
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

match service

To configure a match condition for a specific instant messaging service, use the **match service** command in class-map or policy-map configuration mode. To remove the match condition, use the **no** form of this command.

match [**not**] **service** {**chat** | **file-transfer** | **games** | **voice-chat** | **webcam** | **conference**}

no match [**not**] **service** {**chat** | **file-transfer** | **games** | **voice-chat** | **webcam** | **conference**}

Syntax Description

chat	Specifies to match the instant messaging chat service.
file-transfer	Specifies to match the instant messaging file transfer service.
games	Specifies to match the instant messaging games service.
voice-chat	Specifies to match the instant messaging voice chat service.
webcam	Specifies to match the instant messaging webcam service.
conference	Specifies to match the instant messaging conference service.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class-map or policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command can be configured in an IM class map or policy map. Only one entry can be entered in a IM class map.

Examples

The following example shows how to configure a match condition for the chat service in an instant messaging class map:

```
hostname(config)# class-map type inspect im im_class
hostname(config-cmap)# match service chat
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
match any	Includes all traffic in the class map.
show running-config class-map	Displays the information about the class map configuration.

match third-party-registration

To configure a match condition for the requester of a third-party registration, use the **match third-party-registration** command in class-map or policy-map configuration mode. To remove the match condtion, use the **no** form of this command.

match [**not**] **third-party-registration regex** [*regex_name* | **class** *regex_class_name*]

no match [**not**] **third-party-registration regex** [*regex_name* | **class** *regex_class_name*]

Syntax Description

regex_name	Specifies a regular expression.
class *regex_class_name*	Specifies a regular expression class map.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class-map or policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command can be configured in a SIP class map or policy map. Only one entry can be entered in a SIP class map.

The third-party registration match command is used to identify the user who can register others with a SIP registar or SIP proxy. It is identified by the From header field in the REGISTER message in the case of mismatching From and To values.

Examples

The following example shows how to configure a match condition for third-party registration in a SIP inspection class map:

```
hostname(config-cmap)# match third-party-registration regex class sip_regist
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
match any	Includes all traffic in the class map.
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

match tunnel-group

To match traffic in a class map that belongs to a previously defined tunnel-group, use the **match tunnel-group** command in class-map configuration mode. To remove this specification, use the **no** form of this command.

match tunnel-group *name*

no match tunnel-group *name*

Syntax Description

name	Text for the tunnel group name.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class-map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **match** commands are used to identify the traffic included in the traffic class for a class map. They include different criteria to define the traffic included in a class-map. Define a traffic class using the **class-map** global configuration command as part of configuring a security feature using Modular Policy Framework. From class-map configuration mode, you can define the traffic to include in the class using the **match** command.

After a traffic class is applied to an interface, packets received on that interface are compared to the criteria defined by the **match** statements in the class map. If the packet matches the specified criteria, it is included in the traffic class and is subjected to any actions associated with that traffic class. Packets that do not match any of the criteria in any traffic class are assigned to the default traffic class.

To enable flow-based policy actions, use the **match flow ip destination-address** and **match tunnel-group** commands with the **class-map**, **policy-map**, and **service-policy** commands. The criteria to define flow is the destination IP address. All traffic going to a unique IP destination address is considered a flow. Policy action is applied to each flow instead of the entire class of traffic. QoS action police is applied using the **police** command. Use **match tunnel-group** along with **match flow ip destination-address** to police every tunnel within a tunnel group to a specified rate.

Examples

The following example shows how to enable flow-based policing within a tunnel group and limit each tunnel to a specified rate:

```
hostname(config)# class-map cmap
hostname(config-cmap)# match tunnel-group
hostname(config-cmap)# match flow ip destination-address
hostname(config-cmap)# exit
hostname(config)# policy-map pmap
hostname(config-pmap)# class cmap
hostname(config-pmap)# police 56000
hostname(config-pmap)# exit
hostname(config)# service-policy pmap global
```

Related Commands

Command	Description
class-map	Applies a traffic class to an interface.
clear configure class-map	Removes all of the traffic map definitions.
match access-list	Identifies access list traffic within a class map.
show running-config class-map	Displays the information about the class map configuration.
tunnel-group	Creates and manages the database of connection-specific records for IPsec and L2TP,

match uri

To configure a match condition for the URI in the SIP headers, use the **match uri** command in class-map or policy-map configuration mode. To remove the match condtion, use the **no** form of this command.

match [**not**] **uri** {**sip** | **tel**} **length gt** *gt_bytes*

no match [**not**] **uri** {**sip** | **tel**} **length gt** *gt_bytes*

Syntax Description

sip	Specifies a SIP URI.
tel	Specifies a TEL URI.
length gt *gt_bytes*	Specifies the maximum length of the URI. Value is between 0 and 65536.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Class-map or policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command can be configured in a SIP class map or policy map. Only one entry can be entered in a SIP class map.

Examples

The following example shows how to configure a match condition for the URI in the SIP message:

```
hostname(config-cmap)# match uri sip length gt
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
match any	Includes all traffic in the class map.

Command	Description
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

match url-filter

To configure a match condition for URL filtering in an RTSP message, use the **match url-filter** command in class-map or policy-map configuration mode. To remove the match condition, use the **no** form of this command.

match [**not**] **url-filter regex** [*regex_name* | **class** *regex_class_name*]

no match [**not**] **url-filter regex** [*regex_name* | **class** *regex_class_name*]

Syntax Description

regex_name	Specifies a regular expression.
class *regex_class_name*	Specifies a regular expression class map.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class-map or policy map configuration	•	•	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

This command can be configured in an RTSP class map or policy map.

Examples

The following example shows how to configure a match condition for URL filtering in an RTSP inspection policy map:

```
hostname(config)# regex badurl www.example.com/rtsp.avi
hostname(config)# policy-map type inspect rtsp rtsp-map
hostname(config-pmap)# match url-filter regex badurl
hostname(config-pmap-p)# drop-connection
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.

Command	Description
match any	Includes all traffic in the class map.
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

match user group

To specifie a user or group to whitelist for Cloud Web Security, use the **match user group** command in parameters configuration mode. You can access the parameters onfiguration mode by first entering the **class-map type inspect scansafe** command. To remove the match, use the **no** form of this command.

match [**not**] {[**user** *username*] [**group** *groupname*]}

no match [**not**] {[**user** *username*] [**group** *groupname*]}

Syntax Description

not	(Optional) Specifies that the user and/or group should be filtered using Web Cloud Security. For example, if you whitelist the group "cisco," but you want to scan traffic from users "johncrichton" and "aerynsun," you can specify **match not** for those users.
user *username*	Specifies a user to whitelist.
group *groupname*	Specifies a group to whitelist.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

If you use AAA rules or IDFW, you can configure the ASA so that web traffic from specific users or groups that otherwise match the service policy rule is not redirected to the Cloud Web Security proxy server for scanning. When you bypass Cloud Web Security scanning, the ASA retrieves the content directly from the originally requested web server without contacting the proxy server. When it receives the response from the web server, it sends the data to the client. This process is called "whitelisting" traffic.

Although you can achieve the same results of exempting traffic based on user or group when you configure the class of traffic using ACLs to send to Cloud Web Security, you might find it more straightforward to use a whitelist instead. Note that the whitelist feature is only based on user and group, not on IP address.

After creating the whitelist as part of the inspection policy map (**policy-map type inspect scansafe**), you can use this map when you specify the Cloud Web Security action using the **inspect scansafe** command.

Examples

The following example whitelists the same users and groups for the HTTP and HTTPS inspection policy maps:

```
hostname(config)# class-map type inspect scansafe match-any whitelist1
hostname(config-cmap)# match user user1 group cisco
hostname(config-cmap)# match user user2
hostname(config-cmap)# match group group1
hostname(config-cmap)# match user user3 group group3

hostname(config)# policy-map type inspect scansafe cws_inspect_pmap1
hostname(config-pmap)# parameters
hostname(config-pmap-p)# http
hostname(config-pmap-p)# default group default_group
hostname(config-pmap-p)# class whitelist1
hostname(config-pmap-c)# whitelist

hostname(config)# policy-map type inspect scansafe cws_inspect_pmap2
hostname(config-pmap)# parameters
hostname(config-pmap-p)# https
hostname(config-pmap-p)# default group2 default_group2
hostname(config-pmap-p)# class whitelist1
hostname(config-pmap-c)# whitelist
```

Related Commands

Command	Description
class-map type inspect scansafe	Creates an inspection class map for whitelisted users and groups.
default user group	Specifies the default username and/or group if the ASA cannot determine the identity of the user coming into the ASA.
http[**s**] (parameters)	Specifies the service type for the inspection policy map, either HTTP or HTTPS.
inspect scansafe	Enables Cloud Web Security inspection on the traffic in a class.
license	Configures the authentication key that the ASA sends to the Cloud Web Security proxy servers to indicate from which organization the request comes.
policy-map type inspect scansafe	Creates an inspection policy map so you can configure essential parameters for the rule and also optionally identify the whitelist.
retry-count	Enters the retry counter value, which is the amount of time that the ASA waits before polling the Cloud Web Security proxy server to check its availability.
scansafe	In multiple context mode, allows Cloud Web Security per context.
scansafe general-options	Configures general Cloud Web Security server options.
server {**primary** | **backup**}	Configures the fully qualified domain name or IP address of the primary or backup Cloud Web Security proxy servers.
show conn scansafe	Shows all Cloud Web Security connections, as noted by the capitol Z flag.
show scansafe server	Shows the status of the server, whether it's the current active server, the backup server, or unreachable.
show scansafe statistics	Shows total and current http connections.
user-identity monitor	Downloads the specified user or group information from the AD agent.

Command	Description
whitelist	Performs the whitelist action on the class of traffic.

match username

To configure a match condition for an FTP username, use the **match username** command in class-map or policy-map configuration mode. To remove the match condtion, use the **no** form of this command.

match [**not**] **username regex** [*regex_name* | **class** *regex_class_name*]

no match [**not**] **username regex** [*regex_name* | **class** *regex_class_name*]

Syntax Description

regex_name	Specifies a regular expression.
class *regex_class_name*	Specifies a regular expression class map.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Class-map or policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command can be configured in an FTP class map or policy map. Only one entry can be entered in a FTP class map.

Examples

The following example shows how to configure a match condition for an FTP username in an FTP inspection class map:

```
hostname(config)# class-map type inspect ftp match-all ftp_class1
hostname(config-cmap)# match username regex class ftp_regex_user
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.
match any	Includes all traffic in the class map.

Command	Description
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

match version

To configure a match condition for a GTP message ID, use the **match message length** command in class-map or policy-map configuration mode. To remove the match condition, use the **no** form of this command.

match [**not**] **version** [*version_id* | **range** *lower_range upper_range*]

no match [**not**] **version** [*version_id* | **range** *lower_range upper_range*]

Syntax Description

vresion_id	Specifies a version between 0 and 255.
range *lower_range upper_range*	Specifies a lower and upper range of versions.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class-map or policy map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command can be configured in a GTP class map or policy map. Only one entry can be entered in a GTP class map.

Examples

The following example shows how to configure a match condition for a message version in a GTP inspection class map:

```
hostname(config-cmap)# match version 1
```

Related Commands

Command	Description
class-map	Creates a Layer 3/4 class map.
clear configure class-map	Removes all class maps.

Command	Description
match any	Includes all traffic in the class map.
match port	Identifies a specific port number in a class map.
show running-config class-map	Displays the information about the class map configuration.

max-failed-attempts

To specify the number of failed attempts allowed for any given server in the server group before that server is deactivated, use the **max-failed-attempts** command in aaa-server group configuration mode. To remove this specification and revert to the default value, use the **no** form of this command.

max-failed-attempts *number*

no max-failed-attempts

Syntax Description

number	An integer in the range of 1-5, specifying the number of failed connection attempts allowed for any given server in the server group specified in a previous **aaa-server** command.

Defaults

The default value of *number* is 3.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
aaa-server group configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You must have configured the AAA server or group before issuing this command.

Examples

```
hostname(config)# aaa-server svrgrp1 protocol tacacs+
hostname(config-aaa-server-group)# max-failed-attempts 4
hostname(config-aaa-server-group)#
```

Related Commands

Command	Description
aaa-server *server-tag* **protocol** *protocol*	Enters aaa-server group configuration mode so that you can configure AAA server parameters that are group-specific and common to all hosts in the group.

clear configure aaa-server	Removes all AAA server configurations.
show running-config aaa	Displays AAA server statistics for all AAA servers, for a particular server group, for a particular server within a particular group, or for a particular protocol.

max-forwards-validation

To enable check on Max-forwards header field of 0, use the **max-forwards-validation** command in parameters configuration mode. Parameters configuration mode is accessible from policy map configuration mode. To disable this feature, use the **no** form of this command.

max-forwards-validation action {**drop** | **drop-connection** | **reset** | **log**} [**log**}

no max-forwards-validation action {**drop** | **drop-connection** | **reset** | **log**} [**log**}

Syntax Description

drop	Drops the packet if validation occurs.
drop-connection	Drops the connection of a violation occurs.
reset	Resets the connection of a violation occurs.
log	Specifies standalone or additional log in case of violation. It can be associated to any of the actions.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command counts the number of hops to destination, which cannot be 0 before reaching the destination.

Examples

The following example shows how to enable max forwards validation in a SIP inspection policy map:

```
hostname(config)# policy-map type inspect sip sip_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# max-forwards-validation action log
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

max-header-length

To restrict HTTP traffic based on the HTTP header length, use the **max-header-length** command in HTTP map configuration mode, which is accessible using the **http-map** command. To remove this command, use the **no** form of this command.

max-header-length {**request** *bytes* [**response** *bytes*] | **response** *bytes*} **action** {**allow** | **reset** | **drop**} [**log**]

no max-header-length {**request** *bytes* [**response** *bytes*] | **response** *bytes*} **action** {**allow** | **reset** | **drop**} [**log**]

Syntax Description

action	The action taken when a message fails this command inspection.
allow	Allow the message.
drop	Closes the connection.
bytes	Number of bytes, range is 1 to 65535.
log	(Optional) Generate a syslog.
request	Request message.
reset	Send a TCP reset message to client and server.
response	(Optional) Response message.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
HTTP map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

After enabling the **max-header-length** command, the ASA only allows messages having an HTTP header within the configured limit and otherwise takes the specified action. Use the **action** keyword to cause the ASA to reset the TCP connection and optionally create a syslog entry.

Examples

The following example restricts HTTP requests to those with HTTP headers that do not exceed 100 bytes. If a header is too large, the ASA resets the TCP connection and creates a syslog entry.

```
hostname(config)# http-map inbound_http
hostname(config-http-map)# max-header-length request bytes 100 action log reset
hostname(config-http-map)#
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
debug appfw	Displays detailed information about traffic associated with enhanced HTTP inspection.
http-map	Defines an HTTP map for configuring enhanced HTTP inspection.
inspect http	Applies a specific HTTP map to use for application inspection.
policy-map	Associates a class map with specific security actions.

max-object-size

To set a maximum size for objects that the ASA can cache for WebVPN sessions, use the max-object-size command in cache mode. To change the size, use the command again.

max-object-size *integer range*

Syntax Description

integer range	0 - 10000 KB

Defaults

1000 KB

Command Modes

The following table shows the modes in which you enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Cache mode	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

The Maximum object size must be larger than the minimum object size. The ASA calculates the size after compressing the object, if cache compression is enabled.

Examples

The following example shows how to set a maximum object size of 4000 KB:

```
hostname(config)# webvpn
hostname(config-webvpn)# cache
hostname(config-webvpn-cache)# max-object-size 4000
hostname(config-webvpn-cache)#
```

Related Commands

Command	Description
cache	Enters WebVPN Cache mode.
cache-compressed	Configures WebVPN cache compression.
disable	Disables caching.
expiry-time	Configures the expiration time for caching objects without revalidating them.
lmfactor	Sets a revalidation policy for caching objects that have only the last-modified timestamp.
min-object-size	Defines the minimum sizze of an object to cache.

max-retry-attempts

To configure the number of times the ASA retries a failed SSO authentication attempt before letting the request time out, use the **max-retry-attempts** command in the webvpn configuration mode for the specific SSO server type.

To return to the default value, use the **no** form of this command.

max-retry-attempts *retries*

no max-retry-attempts

Syntax Description

retries	The number of times the ASA retries a failed SSO authentication attempt. The range is 1 to 5 retries.

Defaults

The default value for this command is 3.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
config-webvpn-sso-saml	•	—	•	—	—
config-webvpn-sso-siteminder	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

Single sign-on support, available only for WebVPN, lets users access different secure services on different servers without entering a username and password more than once. The ASA currently supports the SiteMinder-type of SSO server and the SAML POST-type SSO server.

This command applies to both types of SSO Servers.

Once you have configured the ASA to support SSO authentication, optionally you can adjust two timeout parameters:

- The number of times the ASA retries a failed SSO authentication attempt using the **max-retry-attempts** command.
- The number of seconds before a failed SSO authentication attempt times out (see the **request-timeout** command).

Examples

The following example, entered in webvpn-sso-siteminder configuration mode, configures four authentication retries for the SiteMinder SSO server named my-sso-server:

```
hostname(config-webvpn)# sso-server my-sso-server type siteminder
hostname(config-webvpn-sso-siteminder)# max-retry-attempts 4
hostname(config-webvpn-sso-siteminder)#
```

Related Commands

Command	Description
policy-server-secret	Creates a secret key used to encrypt authentication requests to a SiteMinder SSO server.
request-timeout	Specifies the number of seconds before a failed SSO authentication attempt times out.
show webvpn sso-server	Displays the operating statistics for all SSO servers configured on the security device.
sso-server	Creates a single sign-on server.
web-agent-url	Specifies the SSO server URL to which the ASA makes SiteMinder SSO authentication requests.

max-uri-length

To restrict HTTP traffic based on the length of the URI in the HTTP request message, use the **max-uri-length** command in HTTP map configuration mode, which is accessible using the **http-map** command. To remove this command, use the **no** form of this command.

max-uri-length *bytes* **action** {**allow** | **reset** | **drop**} [**log**]

no max-uri-length *bytes* **action** {**allow** | **reset** | **drop**} [**log**]

Syntax Description

action	The action taken when a message fails this command inspection.
allow	Allow the message.
drop	Closes the connection.
bytes	Number of bytes, range is 1 to 65535.
log	(Optional) Generate a syslog.
reset	Send a TCP reset message to client and server.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
HTTP map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

After enabling the **max-uri-length** command, the ASA only allows messages having a URI within the configured limit and otherwise takes the specified action. Use the **action** keyword to cause the ASA to reset the TCP connection and create a syslog entry.

URIs with a length less than or equal to the configured value will be allowed. Otherwise, the specified action will be taken.

Examples

The following example restricts HTTP requests to those with URIs that do not exceed 100 bytes. If a URI is too large, the ASA resets the TCP connection and creates a syslog entry.

```
hostname(config)# http-map inbound_http
hostname(config-http-map)# max-uri-length 100 action reset log
hostname(config-http-map)#
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
debug appfw	Displays detailed information about traffic associated with enhanced HTTP inspection.
http-map	Defines an HTTP map for configuring enhanced HTTP inspection.
inspect http	Applies a specific HTTP map to use for application inspection.
policy-map	Associates a class map with specific security actions.

mcc

To identify the mobile country code and the mobile network code for IMSI prefix filtering, use the **mcc** command in GTP map configuration mode. To remove the configuration, use the **no** form of this command.

mcc *country_code* **mnc** *network_code*

no mcc *country_code* **mnc** *network_code*

Syntax Description

country_code	A non-zero, three-digit value identifying the mobile country code. One or two-digit entries will be prepended by 0 to create a three-digit value.
network_code	A two or three-digit value identifying the network code.

Defaults

By default, the ASA does not check for valid MCC/MNC combinations.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
GTP map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command is used for IMSI Prefix filtering. The MCC and MNC in the IMSI of the received packet is compared with the MCC/MNC configured with this command and is dropped if it does not match.

This command must be used to enable IMSI Prefix filtering. You can configure multiple instances to specify permitted MCC and MNC combinations. By default, the ASA does not check the validity of MNC and MCC combinations, so you must verify the validity of the combinations configured. To find more information about MCC and MNC codes, see the ITU E.212 recommendation, *Identification Plan for Land Mobile Stations*.

Examples

The following example identifies traffic for IMSI Prefix filtering with an MCC of 111 and an MNC of 222:

```
hostname(config)# gtp-map qtp-policy
hostname(config-gtpmap)# mcc 111 mnc 222
hostname(config-gtpmap)#
```

Related Commands

Commands	Description
clear service-policy inspect gtp	Clears global GTP statistics.
debug gtp	Displays detailed information about GTP inspection.
gtp-map	Defines a GTP map and enables GTP map configuration mode.
inspect gtp	Applies a specific GTP map to use for application inspection.
show service-policy inspect gtp	Displays the GTP configuration.

media-termination

To specify the media termination instance to use for media connections to the Phone Proxy feature, use the **media-termination** command in global configuration mode.

To remove the media-termination address from the Phone Proxy configuration, use the **no** form of this command.

media-termination *instance_name*

no media-termination *instance_name*

Syntax Description

instance_name	Specifies the name of the interface for which the media termination address is used. Only one media-termination address can be configured per interface.

Defaults

There are no default settings for this command.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
8.0(4)	The command was introduced.
8.2(1)	This command was updated to allow for using NAT with the media-termination address. The **rtp-min-port** and **rtp-max-ports** keywords were removed from the command syntax and included as a separate command

Usage Guidelines

The ASA must have IP addresses for media termination that meet the following criteria:

For the media termination instance, you can configure a global media-termination address for all interfaces or configure a media-termination address for different interfaces. However, you cannot use a global media-termination address and media-termination addresses configured for each interface at the same time.

If you configure a media termination address for multiple interfaces, you must configure an address on each interface that the ASA uses when communicating with IP phones.

The IP addresses are publicly routable addresses that are unused IP addresses within the address range on that interface.

See CLI configuration guide for the complete list of prerequisites that you must follow when creating the media termination instance and configuring the media termination addresses.

Examples

The following example shows the use of the media-termination address command to specify the IP address to use for media connections:

```
hostname(config-phone-proxy)# media-termination mta_instance1
```

Related Commands

Command	Description
phone-proxy	Configures the Phone Proxy instance.

media-type

To set the media type to copper or fiber Gigabit Ethernet, use the **media-type** command in interface configuration mode. The fiber SFP connector is available on the 4GE SSM for the ASA 5500 series adaptive security appliance. To restore the media type setting to the default, use the **no** form of this command.

media-type {**rj45** | **sfp**}

no media-type [**rj45** | **sfp**]

Syntax Description

rj45	(Default) Sets the media type to the copper RJ-45 connector.
sfp	Sets the media type to the fiber SFP connector.

Defaults

The default is **rj45**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	—	•

Command History

Release	Modification
7.0(4)	This command was introduced.

Usage Guidelines

The **sfp** setting uses a fixed speed (1000 Mbps), so the **speed** command allows you to set whether the interface negotiates link parameters or not. The **duplex** command is not supported for **sfp**.

Examples

The following example sets the media type to SFP:

```
hostname(config)# interface gigabitethernet1/1
hostname(config-if)# media-type sfp
hostname(config-if)# nameif inside
hostname(config-if)# security-level 100
hostname(config-if)# ip address 10.1.1.1 255.255.255.0
hostname(config-if)# no shutdown
```

Related Commands

Command	Description
interface	Configures an interface and enters interface configuration mode.
show interface	Displays the runtime status and statistics of interfaces.
show running-config interface	Shows the interface configuration.
speed	Sets the interface speed.

member

To assign a context to a resource class, use the **member** command in context configuration mode. To remove the context from the class, use the **no** form of this command.

member *class_name*

no member *class_name*

Syntax Description

class_name	Specifies the class name you created with the **class** command.

Defaults

By default, the context is assigned to the default class.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Context configuration	•	•	—	—	•

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

By default, all security contexts have unlimited access to the resources of the ASA, except where maximum limits per context are enforced. However, if you find that one or more contexts use too many resources, and they cause other contexts to be denied connections, for example, then you can configure resource management to limit the use of resources per context. The ASA manages resources by assigning contexts to resource classes. Each context uses the resource limits set by the class.

Examples

The following example assigns the context test to the gold class:

```
hostname(config-ctx)# context test
hostname(config-ctx)# allocate-interface gigabitethernet0/0.100 int1
hostname(config-ctx)# allocate-interface gigabitethernet0/0.102 int2
hostname(config-ctx)# allocate-interface gigabitethernet0/0.110-gigabitethernet0/0.115
int3-int8
hostname(config-ctx)# config-url ftp://user1:passw0rd@10.1.1.1/configlets/test.cfg
hostname(config-ctx)# member gold
```

Related Commands

Command	Description
class	Creates a resource class.
context	Configures a security context.
limit-resource	Sets the limit for a resource.
show resource allocation	Shows how you allocated resources across classes.
show resource types	Shows the resource types for which you can set limits.

member-interface

To assign a physical interface to a redundant interface, use the **member-interface** command in interface configuration mode. This command is available only for the redundant interface type. You can assign two member interfaces to a redundant interface. To remove a member interface, use the **no** form of this command. You cannot remove both member interfaces from the redundant interface; the redundant interface requires at least one member interface.

member-interface *physical_interface*

no member-interface *physical_interface*

Syntax Description

physical_interface	Identifies the interface ID, such as **gigabitethernet 0/1**. See the **interface** command for accepted values. Both member interfaces must be the same physical type.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	—	•

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Both member interfaces must be of the same physical type. For example, both must be Ethernet.

You cannot add a physical interface to the redundant interface if you configured a name for it. You must first remove the name using the **no nameif** command.

Caution If you are using a physical interface already in your configuration, removing the name will clear any configuration that refers to the interface.

The only configuration available to physical interfaces that are part of a redundant interface pair are physical parameters such as **speed** and **duplex** commands, the **description** command, and the **shutdown** command. You can also enter run-time commands like **default** and **help**.

If you shut down the active interface, then the standby interface becomes active.

To change the active interface, enter the **redundant-interface** command.

The redundant interface uses the MAC address of the first physical interface that you add. If you change the order of the member interfaces in the configuration, then the MAC address changes to match the MAC address of the interface that is now listed first. Alternatively, you can assign a MAC address to the redundant interface, which is used regardless of the member interface MAC addresses (see the **mac-address** command or the **mac-address auto** command). When the active interface fails over to the standby, the same MAC address is maintained so traffic is not disrupted.

Examples

The following example creates two redundant interfaces:

```
hostname(config)# interface redundant 1
hostname(config-if)# member-interface gigabitethernet 0/0
hostname(config-if)# member-interface gigabitethernet 0/1
hostname(config-if)# interface redundant 2
hostname(config-if)# member-interface gigabitethernet 0/2
hostname(config-if)# member-interface gigabitethernet 0/3
```

Related Commands

Command	Description
clear interface	Clears counters for the **show interface** command.
debug redundant-interface	Displays debug messages related to redundant interface events or errors.
interface redundant	Creates a redundant interface.
redundant-interface	Changes the active member interface.
show interface	Displays the runtime status and statistics of interfaces.

memberof

To specify a list of group-names that this user is a member of, use the **memberof** command in username attributes configuration mode. To remove this attribute from the configuration, use the **no** form of this command.

memberof *group_1*[,*group_2,...group_n*]

no memberof *group_1*[,*group_2,...group_n*]

Syntax Description

group_1 through group_n	Specifies the groups to which this user belongs.

Defaults

No default behavior or value.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Username attributes configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Enter a comma-separated list of group names to which this user belongs.

Examples

The following example entered in global configuration mode, creates a username called newuser, then specifies that newuser is a member of the DevTest and management groups:

```
hostname(config)# username newuser nopassword
hostname(config)# username newuser attributes
hostname(config-username)# memberof DevTest,management
hostname(config-username)#
```

Related Commands

Command	Description
clear configure username	Clears the entire username database or just the specified username.
show running-config username	Displays the currently running username configuration for a specified user or for all users.
username	Creates and manages the database of user names.

memory delayed-free-poisoner enable

To enable the delayed free-memory poisoner tool, use the **memory delayed-free-poisoner enable** command in privileged EXEC mode. To disable the delayed free-memory poisoner tool, use the **no** form of this command. The delayed free-memory poisoner tool lets you monitor freed memory for changes after it has been released by an application.

memory delayed-free-poisoner enable

no memory delayed-free-poisoner enable

Syntax Description

This command has no arguments or keywords.

Defaults

The **memory delayed-free-poisoner enable** command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Enabling the delayed free-memory poisoner tool has a significant impact on memory usage and system performance. The command should only be used under the supervision of the Cisco TAC. It should not be run in a production environment during heavy system usage.

When you enable this tool, requests to free memory by the applications running on the ASA are written to a FIFO queue. As each request is written to the queue, each associated byte of memory that is not required by lower-level memory management is “poisoned” by being written with the value 0xcc.

The freed memory requests remain in the queue until more memory is required by an application than is in the free memory pool. When memory is needed, the first freed memory request is pulled from the queue and the poisoned memory is validated.

If the memory is unmodified, it is returned to the lower-level memory pool and the tool reissues the memory request from the application that made the initial request. The process continues until enough memory for the requesting application is freed.

If the poisoned memory has been modified, then the system forces a crash and produces diagnostic output to determine the cause of the crash.

The delayed free-memory poisoner tool periodically performs validation on all of the elements of the queue automatically. Validation can also be started manually using the **memory delayed-free-poisoner validate** command.

The **no** form of the command causes all of the memory referenced by the requests in the queue to be returned to the free memory pool without validation and any statistical counters to be cleared.

Examples

The following example enables the delayed free-memory poisoner tool:

```
hostname# memory delayed-free-poisoner enable
```

The following is sample output when the delayed free-memory poisoner tool detects illegal memory reuse:

```
delayed-free-poisoner validate failed because a
        data signature is invalid at delayfree.c:328.

    heap region:    0x025b1cac-0x025b1d63 (184 bytes)
    memory address: 0x025b1cb4
    byte offset:    8
    allocated by:   0x0060b812
    freed by:       0x0060ae15

Dumping 80 bytes of memory from 0x025b1c88 to 0x025b1cd7
025b1c80:                         ef cd 1c a1 e1 00 00 00  |           ........
025b1c90: 23 01 1c a1 b8 00 00 00 15 ae 60 00 68 ba 5e 02  |  #.........`.h.^.
025b1ca0: 88 1f 5b 02 12 b8 60 00 00 00 00 00 6c 26 5b 02  |  ..[...`.....l&[.
025b1cb0: 8e a5 ea 10 ff ff ff ff cc cc cc cc cc cc cc cc  |  ................
025b1cc0: cc cc cc cc cc cc cc cc cc cc cc cc cc cc cc cc  |  ................
025b1cd0: cc cc cc cc cc cc cc cc                         |  ........

An internal error occurred.  Specifically, a programming assertion was
violated.  Copy the error message exactly as it appears, and get the
output of the show version command and the contents of the configuration
file.  Then call your technical support representative.

assertion "0" failed: file "delayfree.c", line 191
```

Table 34-2 describes the significant portion of the output.

Table 34-2 Illegal Memory Usage Output Description

Field	Description
heap region	The address region and size of the region of memory available for use by the requesting application. This is not the same as the requested size, which may be smaller given the manner in which the system may parcel out memory at the time the memory request was made.
memory address	The location in memory where the fault was detected.
byte offset	The byte offset is relative to the beginning of the heap region and can be used to find the field that was modified if the result was used to hold a data structure starting at this address. A value of 0 or that is larger than the heap region byte count may indicate that the problem is an unexpected value in the lower level heap package.

Table 34-2 Illegal Memory Usage Output Description

Field	Description
allocated by/freed by	Instruction addresses where the last malloc/calloc/realloc and free calls where made involving this particular region of memory.
Dumping...	A dump of one or two regions of memory, depending upon how close the detected fault was to the beginning of the region of heap memory. The next eight bytes after any system heap header is the memory used by this tool to hold a hash of various system header values plus the queue linkage. All other bytes in the region until any system heap trailer is encountered should be set to 0xcc.

Related Commands

Command	Description
clear memory delayed-free-poisoner	Clears the delayed free-memory poisoner tool queue and statistics.
memory delayed-free-poisoner validate	Forces validation of the elements in the delayed free-memory poisoner tool queue.
show memory delayed-free-poisoner	Displays a summary of the delayed free-memory poisoner tool queue usage.

memory delayed-free-poisoner validate

To force validation of all elements in the **memory delayed-free-poisoner** queue, use the **memory delayed-free-poisoner validate** command in privileged EXEC mode.

memory delayed-free-poisoner validate

Syntax Description

This command has no arguments or keywords.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You must enable the delayed free-memory poisoner tool using the **memory delayed-free-poisoner enable** command before issuing the **memory delayed-free-poisoner validate** command.

The **memory delayed-free-poisoner validate** command causes each element of the **memory delayed-free-poisoner** queue to be validated. If an element contains unexpected values, then the system forces a crash and produces diagnostic output to determine the cause of the crash. If no unexpected values are encountered, the elements remain in the queue and are processed normally by the tool; the **memory delayed-free-poisoner validate** command does not cause the memory in the queue to be returned to the system memory pool.

Note The delayed free-memory poisoner tool periodically performs validation on all of the elements of the queue automatically.

Examples

The following example causes all elements in the **memory delayed-free-poisoner** queue to be validated:

```
hostname# memory delayed-free-poisoner validate
```

Related Commands

Command	Description
clear memory delayed-free-poisoner	Clears the delayed free-memory poisoner tool queue and statistics.
memory delayed-free-poisoner enable	Enables the delayed free-memory poisoner tool.
show memory delayed-free-poisoner	Displays a summary of the delayed free-memory poisoner tool queue usage.

memory caller-address

To configure a specific range of program memory for the call tracing, or caller PC, to help isolate memory problems, use the **memory caller-address** command in privileged EXEC mode. The caller PC is the address of the program that called a memory allocation primitive. To remove an address range, use the **no** form of this command.

memory caller-address *startPC endPC*

no memory caller-address

Syntax Description

endPC	Specifies the end address range of the memory block.
startPC	Specifies the start address range of the memory block.

Defaults

The actual caller PC is recorded for memory tracing.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	—	•	•

Command History

Release	Modification
7.0	This command was introduced.

Usage Guidelines

Use the **memory caller-address** command to isolate memory problems to a specific block of memory.

In certain cases the actual caller PC of the memory allocation primitive is a known library function that is used at many places in the program. To isolate individual places in the program, configure the start and end program address of the library function, thereby recording the program address of the caller of the library function.

Note The ASA might experience a temporary reduction in performance when caller-address tracing is enabled.

Examples

The following examples show the address ranges configured with the **memory caller-address** commands, and the resulting display of the **show memory-caller address** command:

```
hostname# memory caller-address 0x00109d5c 0x00109e08
hostname# memory caller-address 0x009b0ef0 0x009b0f14
hostname# memory caller-address 0x00cf211c 0x00cf4464
```

```
hostname# show memory-caller address
Move down stack frame for the addresses:
pc = 0x00109d5c-0x00109e08
pc = 0x009b0ef0-0x009b0f14
pc = 0x00cf211c-0x00cf4464
```

Related Commands

Command	Description
memory profile enable	Enables the monitoring of memory usage (memory profiling).
memory profile text	Configures a text range of memory to profile.
show memory	Displays a summary of the maximum physical memory and current free memory available to the operating system.
show memory binsize	Displays summary information about the chunks allocated for a specific bin size.
show memory profile	Displays information about the memory usage (profiling) of the ASA.
show memory-caller address	Displays the address ranges configured on the ASA.

memory profile enable

To enable the monitoring of memory usage (memory profiling), use the **memory profile enable** command in privileged EXEC mode. To disable memory profiling, use the **no** form of this command.

memory profile enable peak *peak_value*

no memory profile enable peak *peak_value*

Syntax Description

peak_value	Specifies the memory usage threshold at which a snapshot of the memory usage is saved to the peak usage buffer. The contents of this buffer could be analyzed at a later time to determine the peak memory needs of the system.

Defaults

Memory profiling is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	—	•	•

Command History

Release	Modification
7.0	This command was introduced.

Usage Guidelines

Before enabling memory profiling, you must first configure a memory text range to profile with the **memory profile text** command.

Some memory is held by the profiling system until you enter the **clear memory profile** command. See the output of the **show memory status** command.

Note The ASA might experience a temporary reduction in performance when memory profiling is enabled.

The following example enables memory profiling:

```
hostname# memory profile enable
```

Related Commands

Command	Description
memory profile text	Configures a text range of memory to profile.
show memory profile	Displays information about the memory usage (profiling) of the ASA.

memory profile text

To configure a program text range of memory to profile, use the **memory profile text** command in privileged EXEC mode. To disable, use the **no** form of this command.

memory profile text {*startPC endPC* | **all** *resolution*}

no memory profile text {*startPC endPC* | **all** *resolution*}

Syntax Description

all	Specifies the entire text range of the memory block.
endPC	Specifies the end text range of the memory block.
resolution	Specifies the resolution of tracing for the source text region.
startPC	Specifies the start text range of the memory block.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	—	•	•

Command History

Release	Modification
7.0	This command was introduced.

Usage Guidelines

For a small text range, a resolution of "4" normally traces the call to an instruction. For a larger text range, a coarse resolution is probably enough for the first pass and the range could be narrowed down to a set of smaller regions in the next pass.

After entering the text range with the **memory profile text** command, you must then enter the **memory profile enable** command to begin memory profiling. Memory profiling is disabled by default.

Note The ASA might experience a temporary reduction in performance when memory profiling is enabled.

Examples

The following example shows how to configure a text range of memory to profile, with a resolution of 4:

```
hostname# memory profile text 0x004018b4 0x004169d0 4
```

The following example displays the configuration of the text range and the status of memory profiling (OFF):

```
hostname# show memory profile
InUse profiling: OFF
Peak profiling: OFF
Profile:
0x004018b4-0x004169d0(00000004)
```

Note To begin memory profiling, you must enter the **memory profile enable** command. Memory profiling is disabled by default.

Related Commands

Command	Description
clear memory profile	Clears the buffers held by the memory profiling function.
memory profile enable	Enables the monitoring of memory usage (memory profiling).
show memory profile	Displays information about the memory usage (profiling) of the ASA.
show memory-caller address	Displays the address ranges configured on the ASA.

memory-size

To configure the amount of memory on the ASA which the various components of WebVPN can access, use the **memory-size** command in webvpn mode. You can configure the amount of memory either as a as a set amount of memory in KB or as a percentage of total memory. To remove a configured memory size, use the **no** form of this command.

Note A reboot is required for the new memory size setting to take effect.

memory-size {percent | kb} *size*

no memory-size [{percent | kb} *size***]**

Syntax Description

kb	Specifies the amount of memory in Kilobytes.
percent	Specifies the amount of memory as a percentage of total memory on the ASA.
size	Specifies the amount of memory, either in KB or as a percentage of total memory.

Defaults

No default behavior or value.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn mode	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

The configured amount of memory will be allocated immediately. Before configuring this command, check the amount of available memory by using show memory. If a percentage of total memory is used for configuration, ensure that the configured value is below the available percentage. If a Kilobyte value is used for configuration, ensure that the configured value is below the available amount of memory in Kilobytes.

Examples

The following example shows how to configure a WebVPN memory size of 30 per cent:

```
hostname(config)# webvpn
hostname(config-webvpn)# memory-size percent 30
```

```
hostname(config-webvpn)#
hostname(config-webvpn)# reload
```

Related Commands

Command	Description
show memory webvpn	Displays WebVPN memory usage statistics.

memory tracking enable

To enable the tracking of heap memory request, use the **memory tracking enable** command in privileged EXEC mode. To disable memory tracking, use the **no** form of this command.

memory tracking enable

no memory tracking enable

Syntax Description

This command has no arguments or keywords.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	—	•	•

Command History

Release	Modification
7.0(8)	This command was introduced.

Usage Guidelines

Use the **memory tracking enable** command to track heap memory requests. To disable memory tracking, use the **no** form of this command.

Examples

The following example enables tracking heap memory requests:

```
hostname# memory tracking enable
```

Related Commands

Command	Description
clear memory tracking	Clears all currently gathered information.
show memory tracking	Shows currently allocated memory.
show memory tracking address	Lists the size, location, and topmost caller function of each currently allocated piece memory tracked by the tool.
show memory tracking dump	This command shows the size, location, partial callstack, and a memory dump of the given memory address.
show memory tracking detail	Shows various internal details to be used in gaining insight into the tool's internal behavior.

merge-dacl

To merge a downloadable ACL with the ACL received in the Cisco AV pair from a RADIUS packet, use the **merge-dacl** command in aaa-server group configuration mode. To disable the merging of a downloadable ACL with the ACL received in the Cisco AV pair from a RADIUS packet, use the **no** form of this command.

merge dacl {**before_avpair** | **after_avpair**}

no merge dacl

Syntax Description

after_avpair	Specifies that the downloadable ACL entries should be placed after the Cisco AV pair entries. This option applies only to VPN connections. For VPN users, ACLs can be in the form of Cisco AV pair ACLs, downloadable ACLs, and an ACL that is configured on the ASA. This option determines whether or not the downloadable ACL and the AV pair ACL are merged, and does not apply to any ACLs configured on the ASA.
before_avpair	Specifies that the downloadable ACL entries should be placed before the Cisco AV pair entries.

Defaults

The default setting is **no merge dacl**, which specifies that downloadable ACLs will not be merged with Cisco AV pair ACLs.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
AAA-server group configuration	•	•	•	•	•

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

If both an AV pair and a downloadable ACL are received, the AV pair has priority and is used.

Examples

The following example specifies that the downloadable ACL entries should be placed before the Cisco AV pair entries:

```
hostname(config)# aaa-server servergroup1 protocol radius
hostname(config-aaa-server-group)# merge-dacl before-avpair
```

Related Commands

Command	Description
aaa-server host	Identifies the server and the AAA server group to which it belongs.
aaa-server protocol	Identifies the server group name and the protocol.
max-failed-attempts	Specifies the maximum number of requests sent to a AAA server in the group before trying the next server..

message-length

To filter GTP packets that do not meet the configured maximum and minimum length, use the **message-length** command in GTP map configuration mode, which is accessed by using the **gtp-map** command. Use the **no** form to remove the command.

message-length min *min_bytes* **max** *max_bytes*

no message-length min *min_bytes* **max** *max_bytes*

Syntax Description

max	Specifies the maximum number of bytes allowed in the UDP payload.
max_bytes	The maximum number of bytes in the UDP payload. The range is from 1 to 65536
min	Specifies the minimum number of bytes allowed in the UDP payload
min_bytes	The minimum number of bytes in the UDP payload. The range is from 1 to 65536

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
GTP map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The length specified by this command is the sum of the GTP header and the rest of the message, which is the payload of the UDP packet.

Examples

The following example allows messages between 20 bytes and 300 bytes in length:

```
hostname(config)# gtp-map qtp-policy
hostname(config-gtpmap)# permit message-length min 20 max 300
hostname(config-gtpmap)#
```

Related Commands

Commands	Description
clear service-policy inspect gtp	Clears global GTP statistics.
debug gtp	Displays detailed information about GTP inspection.
gtp-map	Defines a GTP map and enables GTP map configuration mode.
inspect gtp	Applies a specific GTP map to use for application inspection.
show service-policy inspect gtp	Displays the GTP configuration.

CHAPTER 35

mfib forwarding through mus server Commands

mfib forwarding

To reenable MFIB forwarding on an interface, use the **mfib forwarding** command in interface configuration mode. To disable MFIB forwarding on an interface, use the **no** form of this command.

mfib forwarding

no mfib forwarding

Syntax Description

This command has no arguments or keywords.

Defaults

The **multicast-routing** command enables MFIB forwarding on all interfaces by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

When you enable multicast routing, MFIB forwarding is enabled on all interfaces by default. Use the **no** form of the command to disable MFIB forwarding on a specific interface. Only the **no** form of the command appears in the running configuration.

When MFIB forwarding is disabled on an interface, the interface does not accept any multicast packets unless specifically configured through other methods. IGMP packets are also prevented when MFIB forwarding is disabled.

Examples

The following example disables MFIB forwarding on the specified interface:

```
hostname(config)# interface GigabitEthernet 0/0
hostname(config-if)# no mfib forwarding
```

Related Commands

Command	Description
multicast-routing	Enables multicast routing.
pim	Enables PIM on an interface.

migrate

To migrate a LAN-to-LAN (IKEv1) or remote access configuration (SSL or IKEv1) to IKEv2, use the **migrate** command from global configuration mode:

migrate {**l2l** | **remote-access** {**ikev2** | **ssl**} | **overwrite**}

Syntax Description

l2l	Migrates the IKEv1 LAN-to-LAN configuration to IKEv2.
remote-access	Specifies remote access configuration.
ikev2	Migrates the remote access IKEv1 configuration to IKEv2.
ssl	Migrates the remote access SSL configuration to IKEv2.
overwrite	Overwrites existing IKEv2 configuration.

Defaults

- There is no default value or behavior.

Command Modes

The following table shows the modes in which you enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
global configuration	•	—	•	•	—

Command History

Release	Modification
8.4(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

The **migrate l2l** command migrates all LAN-to-LAN IKEv1 configuration to IKEv2.

If you use the **overwrite** keyword, the ASA overwrites any existing IKEv2 configuration with migrated commands instead of merging them.

The **migrate remote-access** command migrates the IKEv1 or SSL settings to IKEv2, but you must still perform these configuration tasks:

- Load the AnyConnect client package file(s) in webvpn configuration mode.
- Configure AnyConnect client profiles and specify them for group policies.
- Associate any customization objects you used for IKEv1 connections with the tunnel group(s) used for IKEv2 connections.
- Specify server authentication identity certificates (trustpoints) using the **crypto ikev2 remote-access trust-point** command. The ASA uses the trustpoint to authenticate itself to remote AnyConnect clients connecting with IKEv2.

- Specify IKEv2 and/or SSL for any tunnel groups or group policies you may have configured in addition to the default ones (the DefaultWEBVPNGroup tunnel-group and default group-policy are configured to allow IKEv2 or SSL).
- Configure group aliases or group URLs in the tunnel-groups to enable the clients to connect to groups other than the default group.
- Update any external group policies and/or user records.
- Any other global, tunnel group, group policy settings to change client behavior.
- Configure the port to be used by the client to download files and/or perform software upgrades for IKEv2 using the **crypto ikev2 enable** <*interface*> [**client-services** [*port*]] command.

Related Commands

Command	Description
crypto ikev2 enable	Enables IKEv2 negotiation on the interface on which the IPsec peers communicate.
show run crypto ikev2	Displays IKEv2 configuration information.

min-object-size

To set a minimum size for objects that the ASA can cache for WebVPN sessions, use the min-object-size command in cache mode. To change the size, use the command again. To set no minimum object size, enter a value of zero (0).

min-object-size *integer range*

Syntax Description

integer range	0 - 10000 KB.

Defaults

The default size is 0 KB.

Command Modes

The following table shows the modes in which you enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Cache mode	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

The minimum object size must be smaller than the maximum object size. The ASA calculates the size after compressing the object, if cache compression is enabled.

Examples

The following example shows how to set a maximum object size of 40 KB:

```
hostname(config)# webvpn
hostname(config-webvpn)# cache
hostname(config-webvpn-cache)# min-object-size 40
hostname(config-webvpn-cache)#
```

Related Commands

Command	Description
cache	Enters WebVPN Cache mode.
cache-compressed	Configures WebVPN cache compression.
disable	Disables caching.
expiry-time	Configures the expiration time for caching objects without revalidating them.

Command	Description
lmfactor	Sets a revalidation policy for caching objects that have only the last-modified timestamp.
max-object-size	Defines the maximum size of an object to cache.

mkdir

To create a new directory, use the **mkdir** command in privileged EXEC mode.

mkdir [**/noconfirm**] [**disk0: | disk1: | flash:**]*path*

Syntax Description

noconfirm	(Optional) Suppresses the confirmation prompt.
disk0*:*	(Optional) Specifies the internal Flash memory, followed by a colon.
disk1:	(Optional) Specifies the external Flash memory card, followed by a colon.
flash:	(Optional) Specifies the internal Flash memory, followed by a colon. In the ASA 5500 series adaptive security appliances, the **flash** keyword is aliased to **disk0**.
path	The name and path of the directory to create.

Defaults

If you do not specify a path, the directory is created in the current working directory.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

If a directory with the same name already exists, then the new directory is not created.

Examples

The following example shows how to make a new directory called “backup”:

```
hostname# mkdir backup
```

Related Commands

Command	Description
cd	Changes the current working directory to the one specified.
dir	Displays the directory contents.
rmdir	Removes the specified directory.
pwd	Display the current working directory.

mobile-device portal

To change the clientless vpn access web portal from the mini-portal to the full-browser portal, for all mobile devices, use the **mobile-device portal** command from webvpn configuration mode. You will only need to make this configuration for smart phones running older operating systems such as Windows CE. You will not need to configure this option using modern smart phones as they use the full-browser portal by default.

mobile-device portal {full}

no mobile-device portal {full}

Syntax Description

mobile-device portal {full}	Changes the clientless vpn access portal from the mini-portal to the full-browser portal for all mobile devices.

Command Default

Before you run the command, the default behavior is that some mobile devices will get clientless vpn access through the mini-portal and some will use the full portal.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
webvpn configuration	•	—	•	—	—

Command History

Release	Modification
8.2(5)	We introduced this command simultaneouslyin 8.2(5) and 8.4(2).
8.4(2)	We introduced this command simultaneously in 8.2(5) and 8.4(2).

Usage Guidelines

Use this command only if you are recommended to do so by Cisco Technical Assistance Center (TAC).

Examples

Changes the clientless vpn access portal to a full-browser portal for all mobile devices.

```
hostname# config t
hostname(config)# webvpn
hostname(config-webvpn)# mobile-device portal full
```

Related Commands

Command	Description
show running-config webvpn	Displays the running configuration for webvpn.

mode

To set the security context mode to single or multiple, use the **mode** command in global configuration mode. You can partition a single ASA into multiple virtual devices, known as security contexts. Each context behaves like an independent device, with its own security policy, interfaces, and administrators. Multiple contexts are similar to having multiple standalone appliances. In single mode, the ASA has a single configuration and behaves as a single device. In multiple mode, you can create multiple contexts, each with its own configuration. The number of contexts allowed depends on your license.

mode {**single** | **multiple**} [**noconfirm**]

Syntax Description

multiple	Sets multiple context mode.
noconfirm	(Optional) Sets the mode without prompting you for confirmation. This option is useful for automated scripts.
single	Sets the context mode to single.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

In multiple context mode, the ASA includes a configuration for each context that identifies the security policy, interfaces, and almost all the options you can configure on a stand-alone device (see the **config-url** command to identify the context configuration location). The system administrator adds and manages contexts by configuring them in the system configuration, which, like a single mode configuration, is the startup configuration. The system configuration identifies basic settings for the ASA. The system configuration does not include any network interfaces or network settings for itself; rather, when the system needs to access network resources (such as downloading the contexts from the server), it uses one of the contexts that is designated as the admin context.

When you change the context mode using the **mode** command, you are prompted to reboot.

The context mode (single or multiple) is not stored in the configuration file, even though it does endure reboots. If you need to copy your configuration to another device, set the mode on the new device to match using the **mode** command.

When you convert from single mode to multiple mode, the ASA converts the running configuration into two files: a new startup configuration that comprises the system configuration, and admin.cfg that comprises the admin context (in the root directory of the internal Flash memory). The original running configuration is saved as old_running.cfg (in the root directory of the internal Flash memory). The original startup configuration is not saved. The ASA automatically adds an entry for the admin context to the system configuration with the name "admin."

If you convert from multiple mode to single mode, you might want to first copy a full startup configuration (if available) to the ASA; the system configuration inherited from multiple mode is not a complete functioning configuration for a single mode device.

Not all features are supported in multiple context mode. See the CLI configuration guide for more information.

Examples

The following example sets the mode to multiple:

```
hostname(config)# mode multiple
WARNING: This command will change the behavior of the device
WARNING: This command will initiate a Reboot
Proceed with change mode? [confirm] y
Convert the system configuration? [confirm] y
Flash Firewall mode: multiple

***
*** --- SHUTDOWN NOW ---
***
*** Message to all terminals:
***
***   change mode

Rebooting....

Booting system, please wait...
```

The following example sets the mode to single:

```
hostname(config)# mode single
WARNING: This command will change the behavior of the device
WARNING: This command will initiate a Reboot
Proceed with change mode? [confirm] y
Flash Firewall mode: single

***
*** --- SHUTDOWN NOW ---
***
*** Message to all terminals:
***
***   change mode



Rebooting....

Booting system, please wait...
```

Related Commands

Command	Description
context	Configures a context in the system configuration and enters context configuration mode.
show mode	Shows the current context mode, either single or multiple.

monitor-interface

To enable health monitoring on a specific interface, use the **monitor-interface** command in global configuration mode. To disable interface monitoring, use the **no** form of this command.

monitor-interface *if_name*

no monitor-interface *if_name*

Syntax Description

if_name	Specifies the name of the interface being monitored.

Defaults

Monitoring of physical interfaces is enabled by default; monitoring of logical interfaces is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The number of interfaces that can be monitored for the ASA is platform dependent and can be determined by viewing the **show failover** command output.

Hello messages are exchanged during every interface poll frequency time period between the ASA failover pair. The failover interface poll time is 3 to 15 seconds. For example, if the poll time is set to 5 seconds, testing begins on an interface if 5 consecutive hellos are not heard on that interface (25 seconds).

Monitored failover interfaces can have the following status:

- Unknown—Initial status. This status can also mean the status cannot be determined.
- Normal—The interface is receiving traffic.
- Testing—Hello messages are not heard on the interface for five poll times.
- Link Down—The interface or VLAN is administratively down.
- No Link—The physical link for the interface is down.
- Failed—No traffic is received on the interface, yet traffic is heard on the peer interface.

In Active/Active failover, this command is only valid within a context.

Examples

The following example enables monitoring on an interface named “inside”:

```
hostname(config)# monitor-interface inside
hostname(config)#
```

Related Commands

Command	Description
clear configure monitor-interface	Restores the default interface health monitoring for all interfaces.
failover interface-policy	Specifies the number or percentage of monitored interface that must fail for failover to occur.
failover polltime	Specifies the interval between hello messages on an interface (Active/Standby failover).
polltime interface	Specifies the interval between hello messages on an interface (Active/Active failover).
show running-config monitor-interface	Displays the **monitor-interface** commands in the running configuration.

more

To display the contents of a file, use the **more** command in privileged EXEC mode.

more {**/ascii** | **/binary**| **/ebcdic** | **disk0**: | **disk1**: | **flash**: | **ftp**: | **http**: | **https**: | **system**: | **tftp**:}*filename*

Syntax Description

/ascii	(Optional) Displays a binary file in binary mode and an ASCII file in binary mode.
/binary	(Optional) Displays any file in binary mode.
/ebcdic	(Optional) Displays binary files in EBCDIC.
disk0*:*	(Optional) Displays a file on the internal Flash memory.
disk1:	(Optional) Displays a file on the external Flash memory card.
filename	Specifies the name of the file to display.
flash:	(Optional) Specifies the internal Flash memory, followed by a colon. In the ASA 5500 series adaptive security appliance, the **flash** keyword is aliased to **disk0**.
ftp:	(Optional) Displays a file on an FTP server.
http:	(Optional) Displays a file on a website.
https:	(Optional) Displays a file on a secure website.
system:	(Optional) Displays the file system.
tftp:	(Optional) Displays a file on a TFTP server.

Defaults

ASCII mode

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **more filesystem:** command prompts you to enter the alias of the local directory or file systems.

Note When you view a configuration file that you have saved using the **more** command, tunnel-group passwords in the configuration file appear in clear text.

Examples

The following example shows how to display the contents of a local file named “test.cfg”:

```
hostname# more test.cfg
: Saved
: Written by enable_15 at 10:04:01 Apr 14 2005

XXX Version X.X(X)
nameif vlan300 outside security10
enable password 8Ry2YjIyt7RRXU24 encrypted
passwd 2KFQnbNIdI.2KYOU encrypted
hostname test
fixup protocol ftp 21
fixup protocol h323 H225 1720
fixup protocol h323 ras 1718-1719
fixup protocol ils 389
fixup protocol rsh 514
fixup protocol smtp 25
fixup protocol sqlnet 1521
fixup protocol sip 5060
fixup protocol skinny 2000
names
access-list deny-flow-max 4096
access-list alert-interval 300
access-list 100 extended permit icmp any any
access-list 100 extended permit ip any any
pager lines 24
icmp permit any outside
mtu outside 1500
ip address outside 172.29.145.35 255.255.0.0
no asdm history enable
arp timeout 14400
access-group 100 in interface outside
!
interface outside
!
route outside 0.0.0.0 0.0.0.0 172.29.145.1 1
timeout xlate 3:00:00
timeout conn 1:00:00 half-closed 0:10:00 udp 0:02:00 icmp 0:00:02 rpc 0:10:00 h3
23 0:05:00 h225 1:00:00 mgcp 0:05:00 sip 0:30:00 sip_media 0:02:00
timeout uauth 0:05:00 absolute
aaa-server TACACS+ protocol tacacs+
aaa-server RADIUS protocol radius
aaa-server LOCAL protocol local
snmp-server host outside 128.107.128.179
snmp-server location my_context, USA
snmp-server contact admin@example.com
snmp-server community public
no snmp-server enable traps
floodguard enable
fragment size 200 outside
no sysopt route dnat
telnet timeout 5
ssh timeout 5
terminal width 511
gdb enable
mgcp command-queue 0
Cryptochecksum:00000000000000000000000000000000
: end
```

Related Commands

Command	Description
cd	Changes to the specified directory.
pwd	Displays the current working directory.

mount (CIFS)

To make a Common Internet File System (CIFS) accessible to the security appliance, use the **mount** command in global configuration mode. This command lets you enter mount cifs configuration mode. To un-mount the CIFS network file system, use the **no** form of this command.

mount *name* **type cifs server** *server-name* **share** *share* **status enable | status disable [domain** *domain-name* **] username** *username* **password** *password*

[**no**] **mount** *name* **type cifs server** *server-name* **share** *share* **status enable | status disable [domain** *domain-name* **] username** *username* **password** *password*

Syntax Description

domain *domain-name*	(Optional) For CIFS file systems only, this argument specifies the Windows NT domain name. A maximum of 63 characters is permitted.
name	Specifies the name of an existing file system to be assigned to the Local CA.
no	Removes an already mounted CIFS file system and renders it inaccessible.
password *password*	Identifies the authorized password for file-system mounting.
server *server-name*	Specifies the predefined name (or the IP address in dotted decimal notation) of the CIFS file-system server.
share *sharename*	Explicitly identifies a specific server share (a folder) by name to access file data within a server.
status enable/disable	Identifies the state of the file system as mounted or un-mounted (available or unavailable).
type	Specifies the CIFS type of file system to mount. For alternative **type** keywords, refer to the **mount (FTP)** command.
type cifs	Specifies that the file system being mounted is CIFS, a file system that provides volume-mounting capabilities for CIFS-shared directories.
user *username*	The authorized username for file-system mounting.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Mount cifs configuration	•	•	•	—	•
Global configuration	•	•	•	—	•

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

The **mount** command uses the Installable File System (IFS) to mount the CIFS file system. IFS, a filesystem API, enables the security appliance to recognize and load drivers for file systems.

The **mount** command attaches the CIFS file system on the security appliance to the UNIX file tree. Conversely, the **no mount** command detaches it.

The *mount-name* specified in the **mount** command is used by other CLI commands to refer to the filesystem already mounted on the security appliance. For example, the **database** command, which sets up file storage for the Local Certificate Authority, needs the mount name of an existing mounted file system to save database files to non-flash storage.

The CIFS remote file-access protocol is compatible with the way applications share data on local disks and network file servers. Running over TCP/IP and using the Internet's global DNS, CIFS is an enhanced version of Microsoft's open, cross-platform Server Message Block (SMB) protocol, the native file-sharing protocol in the Windows operating systems.

Always exit from the root shell after using the **mount** command. The **exit** keyword in mount-cifs-config mode returns the user to global configuration mode.

In order to reconnect, remap your connections to storage.

Note Mounting of CIFS and FTP file systems are supported. (See the **mount** *name* **type ftp** command.) Mounting Network File System (NFS) volumes is not supported for this release.

Examples

The following example mounts *cifs://amer;chief:big-boy@myfiler02/my_share* as the label, *cifs_share:*

```
hostname(config)# mount cifs_share type CIFS
hostname (config-mount-cifs)# server myfiler02a
```

Related Commands

Command	Description
debug cifs	Logs CIFS debug messages.
debug ntdomain	Logs Web VPN NT Domain debug messages
debug webvpn cifs	Logs WebVPN CIFS debug messages.
dir all-filesystems	Displays the files of all filesystems mounted on the ASA.

mount (FTP)

To make a File Transfer Protocol (FTP) file system accessible to the security appliance, use the **mount** *name* **type ftp** command in global configuration mode to enter mount FTP configuration mode. The **no mount** *name* **type ftp** command is used to unmount the FTP network file system.

[**no**] **mount** *name* **type ftp server** *server-name* **path** *pathname* **status enable | status disable mode active | mode passive username** *username* **password** *password*

Syntax Description

exit	Exits from mount-ftp configuration mode and returns to global configuration mode.
ftp	Specifies that the file system being mounted is FTP, a Linux kernel module, enhancing the Virtual File System (VFS) with FTP volume-mounting capabilities that allow you to mount FTP-shared directories.
mode	Identifies the FTP transfer mode as either active or passive.
no	Removes an already mounted FTP file system, rendering it inaccessible.
password *password*	Identifies the authorized password for file-system mounting.
path *pathname*	Specifies the directory pathname to the specified FTP file-system server. The pathname cannot contain spaces.
server *server-name*	Specifies the predefined name (or the IP address in dotted decimal notation) of the FTPFS file-system server.
status enable/disable	Identifies the state of the file system as mounted or unmounted (available or unavailable).
username *username*	Specifies the authorized username for file-system mounting.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Mount-ftp-configuration	•	•	•	—	•
Global configuration	•	•	•	—	•

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

The **mount** *name* **type ftp** command uses the Installable File System (IFS) to mount the specified network file system. IFS, a filesystem API, enables the security appliance to recognize and load drivers for file systems.

To confirm that the FTP file system actually is mounted, use the **dir all-filesystems** instruction

The mount-name specified in the **mount** command is used when other CLI commands refer to the filesystem already mounted on the security appliance. For example, the **database** command, which sets up file storage for the local certificate authority, needs the mount name of a mounted file system to save database files to non-flash storage.

Note Using the **mount** command when you create an FTP-type mount requires that the FTP server must have a UNIX directory listing style. Microsoft FTP servers have the MS-DOS directory listing style as their default.

Note Mounting of CIFS and FTP file systems are supported. (See the **mount** *name* **type ftp** command.) Mounting Network File System (NFS) volumes is not supported for this release.

Examples

This example mounts *ftp://amor;chief:big-kid@myfiler02* as the label, *my ftp:*

```
hostname(config)# mount myftp type ftp server myfiler02a path status enable username chief
password big-kid
```

Related Commands

Command	Description
debug webvpn	Logs WebVPN debugging messages.
ftp mode passive	Controls interaction between the FTP client on the security appliance and the FTP server.

mroute

To configure a static multicast route, use the **mroute** command in global configuration mode. To remove a static multicast route, use the **no** form of this command.

mroute *src smask* {*in_if_name* [**dense** *output_if_name*] | *rpf_addr*} [*distance*]

no mroute *src smask* {*in_if_name* [**dense** *output_if_name*] | *rpf_addr*} [*distance*]

Syntax Description

dense *output_if_name*	(Optional) The interface name for dense mode output. The **dense** *output_if_name* keyword and argument pair is only supported for SMR stub multicast routing (igmp forwarding).
distance	(Optional) The administrative distance of the route. Routes with lower distances have preference. The default is 0.
in_if_name	Specifies the incoming interface name for the mroute.
rpf_addr	Specifies the incoming interface for the mroute. If the RPF address PIM neighbor, PIM join, graft, and prune messages are sent to it. The *rpf-addr* argument can be a host IP address of a directly connected system or a network/subnet number. When it is a route, a recursive lookup is done from the unicast routing table to find a directly connected system.
smask	Specifies the multicast source network address mask.
src	Specifies the IP address of the multicast source.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command lets you statically configure where multicast sources are located. The ASA expects to receive multicast packets on the same interface as it would use to send unicast packets to a specific source. In some cases, such as bypassing a route that does not support multicast routing, multicast packets may take a different path than the unicast packets.

Static multicast routes are not advertised or redistributed.

Use the **show mroute** command displays the contents of the multicast route table. Use the **show running-config mroute** command to display the mroute commands in the running configuration.

Examples

The following example shows how configure a static multicast route using the **mroute** command:

```
hostname(config)# mroute 172.16.0.0 255.255.0.0 inside
```

Related Commands

Command	Description
clear configure mroute	Removes the **mroute** commands from the configuration.
show mroute	Displays the IPv4 multicast routing table.
show running-config mroute	Displays the **mroute** commands in the configuration.

mschapv2-capable

To enable MS-CHAPv2 authentication requests to the RADIUS server, use the **mschapv2-capable** command in aaa-server host configuration mode. To disable MS-CHAPv2, use the **no** form of this command.

mschapv2-capable

no mschapv2-capable

Syntax Description

This command has no arguments or keywords.

Defaults

MS-CHAPv2 is enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Aaa-server host configuration	•	•	•	•	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

To enable MS-CHAPv2 as the protocol used between the ASA and the RADIUS server for a VPN connection, password management must be enabled in the tunnel-group general-attributes. Enabling password management generates an MS-CHAPv2 authentication request from the ASA to the RADIUS server. See the description of the **password-management** command for details.

If you use double authentication and enable password management in the tunnel group, then the primary and secondary authentication requests include MS-CHAPv2 request attributes. If a RADIUS server does not support MS-CHAPv2, then you can configure that server to send a non-MS-CHAPv2 authentication request by using the **no mschapv2-capable** command.

Examples

The following example disables MS-CHAPv2 for the RADIUS server authsrv1.cisco.com:

```
hostname(config)# aaa-server rsaradius protocol radius
hostname(config-aaa-server-group)# aaa-server rsaradius (management) host
authsrv1.cisco.com
hostname(config-aaa-server-host)# key secretpassword
hostname(config-aaa-server-host)# authentication-port 21812
hostname(config-aaa-server-host)# accounting-port 21813
hostname(config-aaa-server-host)# no mschapv2-capable
```

Related Commands

Command	Description
aaa-server host	Identifies a AAA server for a AAA server group.
password-management	When you configure the password-management command, the ASA notifies the remote user at login that the user's current password is about to expire or has expired. The ASA then offers the user the opportunity to change the password.
secondary-authentication-server-group	Specifies the secondary AAA server group, which cannot be an SDI server group.

msie-proxy except-list

To configure browser proxy exception list settings for a local bypass on the client device, enter the **msie-proxy except-list** command in group-policy configuration mode. To remove the attribute from the configuration, use the **no** form of the command.

msie-proxy except-list {value *server*[*:port*] **| none}**

no msie-proxy except-list

Syntax Description

none	Indicates that there is no IP address/hostname or port and prevents inheriting an exception list.
value *server:port*	Specifies the IP address or name of an MSIE server and port that is applied for this client device. The port num ber is optional.

Defaults

By default, msie-proxy except-list is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

The line containing the proxy server IP address or hostname and the port number must be less than 100 characters long.

Note These settings are applied to IE for client connections only.

Refer to the *Cisco AnyConnect Secure Mobility Client Administrator Guide*, *Release 3.1* for further information about proxy settings.

Examples

The following example shows how to set a Microsoft Internet Explorer proxy exception list, consisting of the server at IP address 192.168.20.1, using port 880, for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# msie-proxy except-list value 192.168.20.1:880
hostname(config-group-policy)#
```

Related Commands

Command	Description
show running-configuration group-policy	Shows the value of the configured group-policy attributes.
clear configure group-policy	Removes all configured group-policy attributes.

msie-proxy local-bypass

To configure browser proxy local-bypass settings for a client device, enter the **msie-proxy local-bypass** command in group-policy configuration mode. To remove the attribute from the configuration, use the **no** form of the command.

msie-proxy local-bypass {enable | disable}

no msie-proxy local-bypass {enable | disable}

Syntax Description

disable	Disables browser proxy local-bypass settings for a client device.
enable	Enables browser proxy local-bypass settings for a client device.

Defaults

By default, msie-proxy local-bypass is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Group-policy configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

Refer to the *Cisco AnyConnect Secure Mobility Client Administrator Guide*, *Release 3.1* for further information about proxy settings.

Note These settings are applied to IE for client connections only.

Examples

The following example shows how to enable Microsoft Internet Explorer proxy local-bypass for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# msie-proxy local-bypass enable
hostname(config-group-policy)#
```

Related Commands

Command	Description
show running-configuration group-policy	Shows the value of the configured group-policy attributes.
clear configure group-policy	Removes all configured group-policy attributes.

msie-proxy lockdown

Enabling this feature hides the Connections tab in the browser for the duration of an AnyConnect VPN session. Disabling the feature leaves the display of the Connections tab unchanged

To hide the Connections tab for the duration of an AnyConnect VPN session or to leave it unchanged, use the **msie-proxy lockdown** command in group-policy configuration mode.

msie-proxy lockdown [enable | disable]

SyntaxDescription

disable	Leaves the Connections tab in browser unchanged.
enable	Hides the Connections tab in browser for the duration of an AnyConnect VPN session.

Defaults

The default value of this command in the default group policy is enable. Each group policy inherits its default values from the default group policy.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Group-policy configuration	•	•	•	—	—

Command History

Release	Modification
8.2(3)	This command was introduced.

Usage Guidelines

This command makes a temporary change to the user registry for the duration of the AnyConnect VPN session. When AnyConnect closes the VPN session, it returns the registry to the state it was in before the session.

You might enable this feature to prevent users from specifying a proxy service and changing LAN settings. Preventing user access to these settings enhances endpoint security during the AnyConnect session.

Note These settings are applied to IE for client connections only.

Refer to the *Cisco AnyConnect Secure Mobility Client Administrator Guide*, *Release 3.1* for further information about proxy settings.

Examples

The following example hides the Connections tab for the duration of the AnyConnect session:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# msie-proxy lockdown enable
```

The following example leaves the Connections tab unchanged:

```
hostname(config-group-policy)# msie-proxy lockdown disable
```

Related Commands

Command	Description
msie-proxy except-list	Specifies an exception list of proxy servers for browser on the client device.
msie-proxy local-bypass	Bypasses the local browser proxy settings configured on the client device.
msie-proxy method	Specifies the browser proxy actions for a client device.
msie-proxy pac-url	Specifies a URL from which to retrieve a proxy auto-configuration file that defines the proxy servers.
msie-proxy server	Configures proxy server for browser on the client device.
show running-config group-policy	Shows the group policy settings in the running configuration.

msie-proxy method

To configure the browser proxy actions (“methods”) for a client device, enter the **msie-proxy method** command in group-policy configuration mode. To remove the attribute from the configuration, use the **no** form of the command.

msie-proxy method [**auto-detect** | **no-modify** | **no-proxy** | **use-server** | **use-pac-url**]

no msie-proxy method [**auto-detect** | **no-modify** | **no-proxy** | **use-server** | **use-pac-url**]

Note See the Usage Guidelines section for qualifications that apply to this syntax.

Syntax Description

auto-detect	Enables the use of automatic proxy server detection in the browser for the client device.
no-modify	Leaves the HTTP browser proxy server setting in the browser unchanged for this client device.
no-proxy	Disables the HTTP proxy setting in the browser for the client device.
use-pac-url	Directs the browser to retrieve the HTTP proxy server setting from the proxy auto-configuration file URL specified in the **msie-proxy pac-url** command.
use-server	Sets the HTTP proxy server setting in the browser to use the value configured in the **msie-proxy server** command.

Defaults

The default method is use-server.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.
8.0(2)	Added the use-pac-url option.

Usage Guidelines

The line containing the proxy server IP address or hostname and the port number can contain up to 100 characters.

This command supports the following combinations of options:

- **[no] msie-proxy method no-proxy**
- **[no] msie-proxy method no-modify**
- **[no] msie-proxy method [auto-detect] [use-server] [use-pac-url]**

You can use a text editor to create a proxy auto-configuration (.pac) file for your browser. A .pac file is a JavaScript file that contains logic that specifies one or more proxy servers to be used, depending on the contents of the URL. The .pac file resides on a web server. When you specify **use-pac-url**, the browser uses the .pac file to determine the proxy settings. Use the **msie-proxy pac-url** command to specify the URL from which to retrieve the .pac file.

Note These settings are applied to IE for client connections only.

Refer to the *Cisco AnyConnect Secure Mobility Client Administrator Guide*, *Release 3.1* for further information about proxy settings.

Examples

The following example shows how to configure auto-detect as the Microsoft Internet Explorer proxy setting for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# msie-proxy method auto-detect
hostname(config-group-policy)#
```

The following example configures the Microsoft Internet Explorer proxy setting for the group policy named FirstGroup to use the server QAserver, port 1001 as the server for the client PC:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# msie-proxy server QAserver:port 1001
hostname(config-group-policy)# msie-proxy method use-server
hostname(config-group-policy)#
```

Related Commands

Command	Description
msie-proxy pac-url	Specifies a URL from which to retrieve a proxy auto-configuration file.
msie-proxy server	Configures a browser proxy server and port for a client device.
show running-configuration group-policy	Shows the value of the configured group-policy attributes.
clear configure group-policy	Removes all configured group-policy attributes.

msie-proxy pac-url

To tell a browser where to look for proxy information, enter the **msie-proxy pac-url** command in group-policy configuration mode. To remove the attribute from the configuration, use the **no** form of the command.

msie-proxy pac-url {**none** | **value** *url*}

no msie-proxy pac-url

Syntax Description

none	Specifies that there is no URL value.
value *url*	Specifies the URL of the website at which the browser can get the proxy auto-configuration file that defines the proxy server or servers to use.

Defaults

The default value is none.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Requirements

To use the proxy auto-configuration feature, the remote user must use the Cisco AnyConnect VPN Client. To enable the use of the proxy auto-configuration URL, you must also configure the **msie-proxy method** command with the **use-pac-url** option.

Why Use This Command

Many network environments define HTTP proxies that connect a web browser to a particular network resource. The HTTP traffic can reach the network resource only if the proxy is specified in the browser and the client routes the HTTP traffic to the proxy. SSLVPN tunnels complicate the definition of HTTP proxies because the proxy required when tunneled to an enterprise network can differ from that required when connected to the Internet via a broadband connection or when on a third-party network.

In addition, companies with large networks might need to configure more than one proxy server and let users choose between them, based on transient conditions. By using .pac files, an administrator can author a single script file that determines which of numerous proxies to use for all client computers throughout the enterprise.

The following are some examples of how you might use a PAC file:

- Choosing a proxy at random from a list for load balancing.
- Rotating proxies by time of day or day of the week to accommodate a server maintenance schedule.
- Specifying a backup proxy server to use in case the primary proxy fails.
- Specifying the nearest proxy for roaming users, based on the local subnet.

How to Use the Proxy Auto-Configuration Feature

You can use a text editor to create a proxy auto-configuration (.pac) file for your browser. A .pac file is a JavaScript file that contains logic that specifies one or more proxy servers to be used, depending on the contents of the URL. Use the **msie-proxy pac-url** command to specify the URL from which to retrieve the .pac file. Then, when you specify **use-pac-url** in the **msie-proxy method** command, the browser uses the .pac file to determine the proxy settings.

Note These settings are applied to IE for client connections only.

Refer to the *Cisco AnyConnect Secure Mobility Client Administrator Guide*, *Release 3.1* for further information about proxy settings.

Examples

The following example shows how to configure a browser to get its proxy setting from the URL www.example.com for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# msie-proxy pac-url value http://www.example.com
hostname(config-group-policy)#
```

The following example disables the proxy auto-configuration feature for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# msie-proxy pac-url none
hostname(config-group-policy)#
```

Related Commands

Command	Description
msie-proxy method	Configures the browser proxy actions (“methods”) for a client device.
msie-proxy server	Configures a browser proxy server and port for a client device.
show running-configuration group-policy	Shows the value of the configured group-policy attributes.
clear configure group-policy	Removes all configured group-policy attributes.

msie-proxy server

To configure a browser proxy server and port for a client device, enter the **msie-proxy server** command in group-policy configuration mode. To remove the attribute from the configuration, use the **no** form of the command.

msie-proxy server {value *server*[*:port*] **| none}**

no msie-proxy server

Syntax Description

none	Indicates that there is no IP address/hostname or port specified for the proxy server and prevents inheriting a server.
value *server:port*	Specifies the IP address or name of an MSIE server and port that is applied for this client device. The port number is optional.

Defaults

By default, no msie-proxy server is specified.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

The line containing the proxy server IP address or hostname and the port number must be less than 100 characters long.

Note These settings are applied to IE for client connections only.

Refer to the *Cisco AnyConnect Secure Mobility Client Administrator Guide*, *Release 3.1* for further information about proxy settings.

Examples

The following example shows how to configure the IP address 192.168.10.1 as a Microsoft Internet Explorer proxy server, using port 880, for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# msie-proxy server value 192.168.21.1:880
hostname(config-group-policy)#
```

Related Commands

Command	Description
show running-configuration group-policy	Shows the value of the configured group-policy attributes.
clear configure group-policy	Removes all configured group-policy attributes.

mtu

To specify the maximum transmission unit for an interface, use the **mtu** command in global configuration mode. To reset the MTU block size to 1500 for Ethernet interfaces, use the **no** form of this command. This command supports IPv4 and IPv6 traffic.

mtu *interface_name bytes*

no mtu *interface_name bytes*

Syntax Description

bytes	Number of bytes in the MTU; valid values are from 64 to 65,535 bytes.
interface_name	Internal or external network interface name.

Defaults

The default *bytes* is 1500 for Ethernet interfaces.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	—	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **mtu** command lets you to set the data size that is sent on a connection. Data that is larger than the MTU value is fragmented before being sent.

The ASA supports IP path MTU discovery (as defined in RFC 1191), which allows a host to dynamically discover and cope with the differences in the maximum allowable MTU size of the various links along the path. Sometimes, the ASA cannot forward a datagram because the packet is larger than the MTU that you set for the interface, but the "don't fragment" (DF) bit is set. The network software sends a message to the sending host, alerting it to the problem. The host has to fragment packets for the destination so that they fit the smallest packet size of all the links along the path.

The default MTU is 1500 bytes in a block for Ethernet interfaces (which is also the maximum). This value is sufficient for most applications, but you can pick a lower number if network conditions require it.

When using the Layer 2 Tunneling Protocol (L2TP), we recommend that you set the MTU size to 1380 to account for the L2TP header and IPsec header length.

The minimum MTU allowed on an IPv6 enabled interface is 1280 bytes; however, if IPsec is enabled on the interface, the MTU value should not be set below 1380 because of the overhead of IPsec encryption. Setting the interface below 1380 bytes may result in dropped packets.

Examples

This example shows how to specify the MTU for an interface:

```
hostname(config)# show running-config mtu
mtu outside 1500
mtu inside 1500
hostname(config)# mtu inside 8192
hostname(config)# show running-config mtu
mtu outside 1500
mtu inside 8192
```

Related Commands

Command	Description
clear configure mtu	Clears the configured maximum transmission unit values on all interfaces.
show running-config mtu	Displays the current maximum transmission unit block size.

mtu cluster

To set the maximum transmission unit of the cluster control link, use the **mtu cluster** command in global configuration mode. To restore the default setting, use the **no** form of this command.

mtu cluster *bytes*

no mtu cluster [*bytes*]

Syntax Description

bytes	Specifies the maximum transmission unit for the cluster control link interface, between 64 and 65,535 bytes. The default MTU is 1500 bytes.

Command Default

The default MTU is 1500 bytes.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

We suggest setting the MTU to 1600 bytes or greater, which requires you to enable jumbo frame reservation using the **jumbo-frame reservation** command.

This command is a global configuration command, but is also part of the bootstrap configuration, which is not replicated between units.

Examples

The following example sets the cluster control link MTU to 9000 bytes:

```
hostname(config)# mtu cluster 9000
```

Related Commands

Command	Description
cluster-interface	Identifies the cluster control link interface.
jumbo frame-reservation	Enables use of jumbo Ethernet frames.

multicast boundary

To configure a multicast boundary for administratively-scoped multicast addresses, use the **multicast boundary** command in interface configuration mode. To remove the boundary, use the **no** form of this command. A multicast boundary restricts multicast data packet flows and enables reuse of the same multicast group address in different administrative domains.

multicast boundary *acl* [**filter-autorp**]

no multicast boundary *acl* [**filter-autorp**]

Syntax Description

acl	Specifies an access list name or number. The access list defines the range of addresses affected by the boundary. Use only standard ACLs with this command; extended ACLs are not supported.
filter-autorp	Filters Auto-RP messages denied by the boundary ACL. If not specified, all Auto-RP messages are passed.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

Use this command to configure an administratively scoped boundary on an interface to filter multicast group addresses in the range defined by the *acl* argument. A standard access list defines the range of addresses affected. When this command is configured, no multicast data packets are allowed to flow across the boundary in either direction. Restricting multicast data packet flow enables reuse of the same multicast group address in different administrative domains.

If you configure the **filter-autorp** keyword, the administratively scoped boundary also examines Auto-RP discovery and announcement messages and removes any Auto-RP group range announcements from the Auto-RP packets that are denied by the boundary ACL. An Auto-RP group range announcement is permitted and passed by the boundary only if all addresses in the Auto-RP group range are permitted by the boundary ACL. If any address is not permitted, the entire group range is filtered and removed from the Auto-RP message before the Auto-RP message is forwarded.

Examples

The following example sets up a boundary for all administratively scoped addresses and filters the Auto-RP messages:

```
hostname(config)# access-list boundary_test deny 239.0.0.0 0.255.255.255
hostname(config)# access-list boundary_test permit 224.0.0.0 15.255.255.255
hostname(config)# interface GigabitEthernet0/3
hostname(config-if)# multicast boundary boundary_test filter-autorp
```

Related Commands

Command	Description
multicast-routing	Enables multicast routing on the ASA.

multicast-routing

To enable IP multicast routing on the ASA, use the **multicast routing** command in global configuration mode. To disable IP multicast routing, use the **no** form of this command.

multicast-routing

no multicast-routing

Syntax Description

This command has no arguments or keywords.

Defaults

The **multicast-routing** command enables PIM and IGMP on all interfaces by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **multicast-routing** command enables PIM and IGMP on all interfaces.

Note PIM is not supported with PAT. The PIM protocol does not use ports and PAT only works with protocols that use ports.

If the security appliance is the PIM RP, use the untranslated outside address of the security appliance as the RP address.

The number of entries in the multicast routing tables are limited by the amount of RAM on the system. Table 35-1 lists the maximum number of entries for specific multicast tables based on the amount of RAM on the security appliance. Once these limits are reached, any new entries are discarded.

Table 35-1 Entry Limits for Multicast Tables

Table	16 MB	128 MB	128+ MB
MFIB	1000	3000	5000
IGMP Groups	1000	3000	5000
PIM Routes	3000	7000	12000

Examples

The following example enables IP multicast routing on the ASA:

```
hostname(config)# multicast-routing
```

Related Commands

Command	Description
igmp	Enables IGMP on an interface.
pim	Enables PIM on an interface.

mus

To specify the IP range and interface on which the ASA identifies the WSA, use the **mus** command in global configuration mode. To turn the service off, use the **no** form of this command. This command supports IPv4 and IPv6 traffic. Only WSAs found on the specified subnet and interface are registered.

mus *IPv4 address IPv4 mask interface_name*

no mus *IPv4 address IPv4 mask interface_name*

Note To function as expected, this command requires a release of the AsyncOS for Web version 7.0 that provides AnyConnect Secure Mobility licensing support for the AnyConnect secure mobility client. It also requires an AnyConnect release that supports AnyConnect Secure Mobility, ASA 8.3, and ASDM 6.3.

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
8.3(1)	This command was introduced.

Usage Guidelines

The following commands are possible:

- A.B.C.D—The IP address of WSA authorized to access ASA.
- host—The client periodically checks connectivity to the Web Security appliance by sending a request to a fictitious host. By default, the fictitious host URL is mus.cisco.com. When AnyConnect Security Mobility is enabled, the Web Security appliance intercepts requests destined for the fictitious host and replies to the client.
- password—Configure WSA password.
- server—Configure WSA server

Examples

The following example allows WSA servers on the 1.2.3.x subnet to access secure mobility solutions on the *inside* interface:

```
hostname(config)# mus 1.2.3.0 255.255.255.0 inside
```

Related Commands

Command	Description
mus password	Sets up shared secret for AnyConnect Secure Mobility communications.
mus server	Specifies the port on which the ASA listens for WSA communication.
show webvpn mus	Displays information about the active WSA connection security appliance.

mus host

To specify the MUS hostname on the ASA, enter the **mus host** command in global configuration mode. This is the telemetry URL sent from the ASA to the AnyConnect Client. The AnyConnect clients use this URL to contact the WSA in the private network for MUS-related services. To remove any commands entered with this command, use the **no mus host** command.

mus host *host name*

no mus host

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
8.3(1)	This command was introduced.

Usage Guidelines

You can enable AnyConnect Secure Mobility for a given port. The WSA port values are 1 through 21000. If a port is not specified in the command, port 11999 is used.

You must configure AnyConnect Secure Mobility shared secret before executing this command.

Note To function as expected, this command requires a release of the AsyncOS for Web version 7.0 that provides AnyConnect Secure Mobility licensing support for the AnyConnect Secure Mobility client. It also requires an AnyConnect release that supports AnyConnect Secure Mobility, ASA 8.3, and ASDM 6.3.

Examples

The following example shows how to enter the AnyConnect Secure Mobility host and WebVPN command submode:

```
hostname(config)# webvpn
hostname(config-webvpn)# mus 0.0.0.0 0.0.0.0 inside
hostname(config-webvpn)# mus password abcdefgh123
hostname(config-webvpn)# mus server enable 960 # non-default port
hostname(config-webvpn)# mus host mus.cisco.com
```

Related Commands

Command	Description
mus	Specifies the IP range and interface on which the ASA identifies the WSA.
mus password	Sets up shared secret for AnyConnect Secure Mobility communications.
show webvpn mus	Displays information about the active WSA connection security appliance.

mus password

To set up shared secred for AnyConnect Secure Mobility communications, enter the **mus password** command in global configuration mode. To remove the shared secred, use the **no mus password** command.

mus password

no mus password

Note To function as expected, this command requires a release of the AsyncOS for Web version 7.0 that provides AnyConnect Secure Mobility licensing support for the AnyConnect secure mobility client. It also requires an AnyConnect release that supports AnyConnect Secure Mobility, ASA 8.3, and ASDM 6.3.

Syntax Description

This command has no arguments or keywords.

Defaults

.The valid password is defined by the regular expression [0-9, a-z, A-Z,:;_/-]{8,20}. The overall length of the shared secret password is a minimum of 8 characters and maximum of 20 characters.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
8.3(1)	This command was introduced.

Usage Guidelines

This WebVPN submode lets you configure global settings for WebVPN. You can set up the shared secret for AnyConnect Secure Mobility communications.

Examples

The following example shows how to enter an AnyConnect Secure Mobility password and WebVPN command submode:

```
hostname(config)# mus password <password_string>
hostname(config-webvpn)#
```

Related Commands

Command	Description
mus	Specifies the IP range and interface on which the ASA identifies the WSA.
mus server	Specifies the port on which the ASA listens for WSA communication.
show webvpn mus	Displays information about the active WSA connection security appliance.

mus server

To specify the port on which the ASA listens for WSA communication, enter the **mus server** command in global configuration mode. To remove any commands entered with this command, use the **no mus server** command.

mus server enable

no mus server enable

Note To function as expected, this command requires a release of the AsyncOS for Web version 7.0 that provides AnyConnect Secure Mobility licensing support for the AnyConnect secure mobility client. It also requires an AnyConnect release that supports AnyConnect Secure Mobility, ASA 8.3, and ASDM 6.3.

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
8.3(1)	This command was introduced.

Usage Guidelines

You must specify a port the AnyConnect Secure Mobility service uses. The communication between the ASA and the WSA is by a secure SSL connection on a port specified by the administrator with values of 1 through 21000.

You must configure AnyConnect Secure Mobility shared secret before executing this command.

Examples

The following example shows how to enter the AnyConnect Secure Mobility password and WebVPN command submode:

```
hostname(config-webvpn)# mus server enable?
webvpn mode commands/options
    port Configure WSA port
hostname(config-webvpn)# mus server enable port 12000
```

Related Commands

Command	Description
mus	Specifies the IP range and interface on which the ASA identifies the WSA.
mus password	Sets up shared secret for AnyConnect Secure Mobility communications.
show webvpn mus	Displays information about the active WSA connection security appliance.

CHAPTER 36

nac-authentication-server-group through num-packets Commands

nac-authentication-server-group (deprecated)

To identify the group of authentication servers to be used for Network Admission Control posture validation, use the **nac-authentication-server-group** command in tunnel-group general-attributes configuration mode. To inherit the authentication server group from the default remote access group, access the alternative group policy from which to inherit it, then use the **no** form of this command.

nac-authentication-server-group *server-group*

no nac-authentication-server-group

Syntax Description

server-group	Name of the posture validation server group, as configured on the ASA using the **aaa-server host** command. The name must match the server-tag variable specified in that command.

Defaults

This command has no arguments or keywords.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
tunnel-group general-attributes configuration	•	—	•	—	—

Command History

Release	Modification
7.3(0)	This command was deprecated. The **authentication-server-group** command in nac-policy-nac-framework configuration mode replaced it.
7.2(1)	This command was introduced.

Usage Guidelines

Configure at least one Access Control Server to support NAC. Use the **aaa-server** command to name the ACS group. Then use the **nac-authentication-server-group** command, using the same name for the server group.

Examples

The following example identifies acs-group1 as the authentication server group to be used for NAC posture validation:

```
hostname(config-group-policy)# nac-authentication-server-group acs-group1
hostname(config-group-policy)
```

The following example inherits the authentication server group from the default remote access group.

```
hostname(config-group-policy)# no nac-authentication-server-group
```

```
hostname(config-group-policy)
```

Related Commands

Command	Description
aaa-server	Creates a record of the AAA server or group and sets the host-specific AAA server attributes.
debug eap	Enables logging of EAP events to debug NAC messaging.
debug eou	Enables logging of EAP over UDP (EAPoUDP) events to debug NAC messaging.
debug nac	Enables logging of NAC events.
nac	Enables Network Admission Control on a group policy.

nac-policy

To create or access a Cisco Network Admission Control (NAC) policy, and specify its type, use the **nac-policy** command in global configuration mode. To remove the NAC policy from the configuration, use the **no** form of this command.

nac-policy *nac-policy-name* **nac-framework**

[**no**] **nac-policy** *nac-policy-name* **nac-framework**

Syntax Description

nac-policy-name	Name of the NAC policy. Enter a string of up to 64 characters to name the NAC policy. The **show running-config nac-policy** command displays the name and configuration of each NAC policy already present on the security appliance.
nac-framework	Specifies the use of a NAC framework to provide a network access policy for remote hosts. A Cisco Access Control Server must be present on the network to provide NAC Framework services for the ASA. If you specify this type, the prompt indicates you are in config--nac-policy-nac-framework configuration mode. This mode lets you configure the NAC Framework policy.

Defaults

This command has no default settings.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Use this command once for each NAC Appliance to be assigned to a group policy. Then use the **nac-settings** command to assign the NAC policy to each applicable group policy. Upon the setup of an IPsec or Cisco AnyConnect VPN tunnel, the ASA applies the NAC policy associated with the group policy in use.

You cannot use the **no nac-policy** *name* command to remove a NAC policy if it is already assigned to one or more group policies.

Examples

The following command creates and accesses a NAC Framework policy named nac-framework1:

```
hostname(config)# nac-policy nac-framework1 nac-framework
hostname(config-nac-policy-nac-framework)
```

The following command removes the NAC Framework policy named nac-framework1:

```
hostname(config)# no nac-policy nac-framework1
hostname(config-nac-policy-nac-framework)
```

Related Commands

Command	Description
show running-config nac-policy	Displays the configuration of each NAC policy on the ASA.
show nac-policy	Displays NAC policy usage statistics on the ASA.
clear nac-policy	Resets the NAC policy usage statistics.
nac-settings	Assigns a NAC policy to a group policy.
clear configure nac-policy	Removes all NAC policies from the running configuration except for those that are assigned to group policies.

nac-settings

To assign a NAC policy to a group policy, use the **nac-settings** command in group-policy configuration mode, as follows:

nac-settings {**value** *nac-policy-name* | **none**}

[**no**] **nac-settings** {**value** *nac-policy-name* | **none**}

Syntax Description

nac-policy-name	NAC policy to be assigned to the group policy. The NAC policy you name must be present in the configuration of the ASA. The **show running-config nac-policy** command displays the name and configuration of each NAC policy.
none	Removes the *nac-policy-name* from the group policy and disables the use of a NAC policy for this group policy. The group policy does not inherit the nac-settings value from the default group policy.
value	Assigns the NAC policy to be named to the group policy.

Defaults

This command has no arguments or keywords.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Use the **nac-policy** command to specify the name and type of the NAC policy, then use this command to assign it to a group policy.

The **show running-config nac-policy** command displays the name and configuration of each NAC policy.

The ASA automatically enables NAC for a group policy when you assign a NAC policy to it.

Examples

The following command removes the *nac-policy-name* from the group policy. The group policy inherits the *nac-settings* value from the default group policy:

```
hostname(config-group-policy)# no nac-settings
hostname(config-group-policy)
```

The following command removes the *nac-policy-name* from the group policy and disables the use of a NAC policy for this group policy. The group policy does not inherit the nac-settings value from the default group policy.

```
hostname(config-group-policy)# nac-settings none
hostname(config-group-policy)
```

Related Commands

Command	Description
nac-policy	Creates and accesses a Cisco NAC policy, and specifies its type.
show running-config nac-policy	Displays the configuration of each NAC policy on the ASA.
show nac-policy	Displays NAC policy usage statistics on the ASA.
show vpn-session_summary.db	Displays the number IPsec, WebVPN, and NAC sessions.
show vpn-session.db	Displays information about VPN sessions, including NAC results.

name

To associate a name with an IP address, use the **name** command in global configuration mode. To disable the use of the text names but not remove them from the configuration, use the **no** form of this command.

name *ip_address name* [**description** *text*]]

no name *ip_address* [*name* [**description** *text*]]

Syntax Description

description	(Optional) Specifies a description for the ip address name.
ip_address	Specifies an IP address of the host that is named.
name	Specifies the name assigned to the IP address. Use characters a to z, A to Z, 0 to 9, a dash, and an underscore. The *name* must be 63 characters or less. Also, the *name* cannot start with a number.
text	Specifies the text for the description.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.0(4)	This command was enhanced to include an optional description.
8.3(1)	You can no longer use a named IP address in a **nat** command or an **access-list** command; you must use **object network** names instead. Although **network-object** commands in an object group accept **object network** names, you can still also use a named IP address identified by the **name** command.

Usage Guidelines

To enable the association of a name with an IP address, use the **names** command. You can associate only one name with an IP address.

You must first use the **names** command before you use the **name** command. Use the **name** command immediately after you use the **names** command and before you use the **write memory** command.

The **name** command lets you identify a host by a text name and map text strings to IP addresses. The **no name** command allows you to disable the use of the text names but does not remove them from the configuration. Use the **clear configure name** command to clear the list of names from the configuration.

To disable displaying **name** values, use the **no names** command.

Both the **name** and **names** commands are saved in the configuration.

The **name** command does not support assigning a name to a network mask. For example, this command would be rejected:

```
hostname(config)# name 255.255.255.0 class-C-mask
```

Note None of the commands in which a mask is required can process a name as an accepted network mask.

Examples

This example shows that the **names** command allows you to enable use of the **name** command. The **name** command substitutes **sa_inside** for references to 192.168.42.3 and **sa_outside** for 209.165.201.3. You can use these names with the **ip address** commands when assigning IP addresses to the network interfaces. The **no names** command disables the **name** command values from displaying. Subsequent use of the **names** command again restores the **name** command value display.

```
hostname(config)# names
hostname(config)# name 192.168.42.3 sa_inside
hostname(config)# name 209.165.201.3 sa_outside

hostname(config-if)# ip address inside sa_inside 255.255.255.0
hostname(config-if)# ip address outside sa_outside 255.255.255.224

hostname(config)# show ip address
System IP Addresses:
    inside ip address sa_inside mask 255.255.255.0
    outside ip address sa_outside mask 255.255.255.224

hostname(config)# no names
hostname(config)# show ip address
System IP Addresses:
    inside ip address 192.168.42.3 mask 255.255.255.0
    outside ip address 209.165.201.3 mask 255.255.255.224

hostname(config)# names
hostname(config)# show ip address
System IP Addresses:
    inside ip address sa_inside mask 255.255.255.0
    outside ip address sa_outside mask 255.255.255.224
```

Related Commands

Command	Description
clear configure name	Clears the list of names from the configuration.
names	Enables the association of a name with an IP address.
show running-config name	Displays the names associated with an IP address.

name (dynamic-filter blacklist or whitelist)

To add a domain name to the Botnet Traffic Filter blacklist or whitelist, use the **name** command in dynamic-filter blacklist or whitelist configuration mode. To remove the name, use the **no** form of this command. The static database lets you augment the dynamic database with domain names or IP addresses that you want to whitelist or blacklist.

name *domain_name*

no name *domain_name*

Syntax Description

domain_name	Adds a name to the blacklist. You can enter this command multiple times for multiple entries. You can add up to 1000 blacklist entries.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Dynamic-filter blacklist or whitelist configuration	•	•	•	•	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

After you enter the dynamic-filter whitelist or blacklist configuration mode, you can manually enter domain names or IP addresses (host or subnet) that you want to tag as good names in a whitelist or bad names in a blacklist using the **address** and **name** commands.

You can enter this command multiple times for multiple entries. You can add up to 1000 blacklist and 1000 whitelist entries.

When you add a domain name to the static database, the ASA waits 1 minute, and then sends a DNS request for that domain name and adds the domain name/IP address pairing to the *DNS host cache*. (This action is a background process, and does not affect your ability to continue configuring the ASA).

If you do not have a domain name server configured for the ASA, or it is unavailable, then you can alternatively enable DNS packet inspection with Botnet Traffic Filter snooping (see the **inspect dns dynamic-filter-snooping** command). With DNS snooping, when an infected host sends a DNS request for a name on the static database, the ASA looks inside the DNS packets for the domain name and associated IP address and adds the name and IP address to the DNS reverse lookup cache. See the **inspect dns dynamic-filter-snooping** command for information about the DNS reverse lookup cache.

Entries in the DNS host cache have a time to live (TTL) value provided by the DNS server. The largest TTL value allowed is 1 day (24 hours); if the DNS server provides a larger TTL, it is truncated to 1 day maximum.

For the DNS host cache, after an entry times out, the ASA periodically requests a refresh for the entry.

Examples

The following example creates entries for the blacklist and whitelist:

```
hostname(config)# dynamic-filter blacklist
hostname(config-llist)# name bad1.example.com
hostname(config-llist)# name bad2.example.com
hostname(config-llist)# address 10.1.1.1 255.255.255.0
hostname(config-llist)# dynamic-filter whitelist
hostname(config-llist)# name good.example.com
hostname(config-llist)# name great.example.com
hostname(config-llist)# name awesome.example.com
hostname(config-llist)# address 10.1.1.2 255.255.255.255
```

Related Commands

Command	Description
address	Adds an IP address to the blacklist or whitelist.
clear configure dynamic-filter	Clears the running Botnet Traffic Filter configuration.
clear dynamic-filter dns-snoop	Clears Botnet Traffic Filter DNS snooping data.
clear dynamic-filter reports	Clears Botnet Traffic filter report data.
clear dynamic-filter statistics	Clears Botnet Traffic filter statistics.
dns domain-lookup	Enables the ASA to send DNS requests to a DNS server to perform a name lookup for supported commands.
dns server-group	Identifies a DNS server for the ASA.
dynamic-filter blacklist	Edits the Botnet Traffic Filter blacklist.
dynamic-filter database fetch	Manually retrieves the Botnet Traffic Filter dynamic database.
dynamic-filter database find	Searches the dynamic database for a domain name or IP address.
dynamic-filter database purge	Manually deletes the Botnet Traffic Filter dynamic database.
dynamic-filter enable	Enables the Botnet Traffic Filter for a class of traffic or for all traffic if you do not specify an access list.
dynamic-filter updater-client enable	Enables downloading of the dynamic database.
dynamic-filter use-database	Enables use of the dynamic database.
dynamic-filter whitelist	Edits the Botnet Traffic Filter whitelist.
inspect dns dynamic-filter-snoop	Enables DNS inspection with Botnet Traffic Filter snooping.
name	Adds a name to the blacklist or whitelist.
show asp table dynamic-filter	Shows the Botnet Traffic Filter rules that are installed in the accelerated security path.
show dynamic-filter data	Shows information about the dynamic database, including when the dynamic database was last downloaded, the version of the database, how many entries the database contains, and 10 sample entries.

Command	Description
show dynamic-filter dns-snoop	Shows the Botnet Traffic Filter DNS snooping summary, or with the **detail** keyword, the actual IP addresses and names.
show dynamic-filter reports	Generates reports of the top 10 botnet sites, ports, and infected hosts.
show dynamic-filter statistics	Shows how many connections were monitored with the Botnet Traffic Filter, and how many of those connections match the whitelist, blacklist, and greylist.
show dynamic-filter updater-client	Shows information about the updater server, including the server IP address, the next time the ASA will connect with the server, and the database version last installed.
show running-config dynamic-filter	Shows the Botnet Traffic Filter running configuration.

nameif

To provide a name for an interface, use the **nameif** command in interface configuration mode. To remove the name, use the **no** form of this command. The interface name is used in all configuration commands on the ASA instead of the interface type and ID (such as gigabitethernet0/1), and is therefore required before traffic can pass through the interface.

nameif *name*

no nameif

Syntax Description

name	Sets a name up to 48 characters in length. The name is not case-sensitive.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was changed from a global configuration command to an interface configuration mode command.

Usage Guidelines

For subinterfaces, you must assign a VLAN with the **vlan** command before you enter the **nameif** command.

You can change the name by reentering this command with a new value. Do not enter the **no** form, because that command causes all commands that refer to that name to be deleted.

Examples

The following example configures the names for two interfaces to be “inside” and “outside:”

```
hostname(config)# interface gigabitethernet0/1
hostname(config-if)# nameif inside
hostname(config-if)# security-level 100
hostname(config-if)# ip address 10.1.1.1 255.255.255.0
hostname(config-if)# no shutdown
hostname(config-if)# interface gigabitethernet0/0
hostname(config-if)# nameif outside
hostname(config-if)# security-level 0
hostname(config-if)# ip address 10.1.2.1 255.255.255.0
hostname(config-if)# no shutdown
```

Related Commands

Command	Description
clear xlate	Resets all translations for existing connections, causing the connections to be reset.
interface	Configures an interface and enters interface configuration mode.
security-level	Sets the security level for the interface.
vlan	Assigns a VLAN ID to a subinterface.

names

To enable the association of a name with an IP address, use the **names** command in global configuration mode. You can associate only one name with an IP address. To disable displaying **name** values, use the **no names** command.

names

no names

Syntax Description

This command has no arguments or keywords.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To enable the association of a name with an IP address, use the **names** command. You can associate only one name with an IP address.

You must first use the **names** command before you use the **name** command. Use the **name** command immediately after you use the **names** command and before you use the **write memory** command.

To disable displaying **name** values, use the **no names** command.

Both the **name** and **names** commands are saved in the configuration.

Examples

This example shows that the **names** command allows you to enable use of the **name** command. The **name** command substitutes **sa_inside** for references to 192.168.42.3 and **sa_outside** for 209.165.201.3. You can use these names with the **ip address** commands when assigning IP addresses to the network interfaces. The **no names** command disables the **name** command values from displaying. Subsequent use of the **names** command again restores the **name** command value display.

```
hostname(config)# names
hostname(config)# name 192.168.42.3 sa_inside
hostname(config)# name 209.165.201.3 sa_outside

hostname(config-if)# ip address inside sa_inside 255.255.255.0
```

```
hostname(config-if)# ip address outside sa_outside 255.255.255.224

hostname(config)# show ip address
System IP Addresses:
    inside ip address sa_inside mask 255.255.255.0
    outside ip address sa_outside mask 255.255.255.224

hostname(config)# no names
hostname(config)# show ip address
System IP Addresses:
    inside ip address 192.168.42.3 mask 255.255.255.0
    outside ip address 209.165.201.3 mask 255.255.255.224

hostname(config)# names
hostname(config)# show ip address
System IP Addresses:
    inside ip address sa_inside mask 255.255.255.0
    outside ip address sa_outside mask 255.255.255.224
```

Related Commands

Command	Description
clear configure name	Clears the list of names from the configuration.
name	Associates a name with an IP address.
show running-config name	Displays a list of names associated with IP addresses.
show running-config names	Displays the IP address-to-name conversions.

name-separator

To specify a character as a delimiter between the e-mail and VPN username and password, use the **name-separator** command in the applicable e-mail proxy mode. To revert to the default, ":", use the **no** version of this command.

name-separator [*symbol*]

no name-separator

Syntax Description

symbol	(Optional) The character that separates the e-mail and VPN usernames and passwords. Choices are "@," (at) "|" (pipe), ":"(colon), "#" (hash), "," (comma), and ";" (semi-colon).

Defaults

The default is ":" (colon).

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Pop3s	•	—	•	—	—
Imap4s	•	—	•	—	—
Smtps	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The name separator must be different from the server separator.

Examples

The following example shows how to set a hash (#) as the name separator for POP3S:

```
hostname(config)# pop3s
hostname(config-pop3s)# name-separator #
```

Related Commands

Command	Description
server-separator	Separates the e-mail and server names.

name-server

To identify one or more DNS servers, use the **name-server** command in dns server-group configuration mode. To remove a server or servers, use the **no** form of this command. The ASA uses DNS to resolve server names in your SSL VPN configuration or certificate configuration (see "Usage Guidelines" for a list of supported commands). Other features that define server names (such as AAA) do not support DNS resolution. You must enter the IP address or manually resolve the name to an IP address by using the **name** command.

name-server *ip_address* [*ip_address2*] [...] [*ip_address6*]

no name-server *ip_address* [*ip_address2*] [...] [*ip_address6*]

Syntax Description

ip_address	Specifies the DNS server IP address. You can specify up to six addresses as separate commands, or for convenience, up to six addresses in one command separated by spaces. If you enter multiple servers in one command, the ASA saves each server in a separate command in the configuration. The ASA tries each DNS server in order until it receives a response.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
dns server-group configuration	•	•	•	•	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

To enable DNS lookup, configure the **domain-name** command in dns server-group configuration mode. If you do not enable DNS lookup, the DNS servers are not used.

SSL VPN commands that support DNS resolution include the following:

- **server (pop3s)**
- **server (imap4s)**
- **server (smtps)**
- **port-forward**
- **url-list**

Certificate commands that support DNS resolution include the following:

- **enrollment url**
- **url**

You can manually enter names and IP addresses using the **name** command.

Examples

The following example adds three DNS servers to the group "dnsgroup1":

```
hostname(config)# dns server-group dnsgroup1
hostname(config-dns-server-group)# name-server 10.1.1.1 10.2.3.4 192.168.5.5
```

The ASA saves the configuration as separate commands, as follows:

```
name-server 10.1.1.1
name-server 10.2.3.4
name-server 192.168.5.5
```

To add two additional servers, you can enter them as one command:

```
hostname(config)# dns server-group dnsgroup1
hostname(config-dns-server-group)# name-server 10.5.1.1 10.8.3.8
```

To verify the dns server group configuration, enter the **show running-config dns** command in global configuration mode:

```
hostname(config)# show running-config dns
name-server 10.1.1.1
name-server 10.2.3.4
name-server 192.168.5.5
name-server 10.5.1.1
name-server 10.8.3.8
...
```

Or you can enter them as two separate commands:

```
hostname(config)# dns server-group dnsgroup1
hostname(config-dns-server-group)# name-server 10.5.1.1
hostname(config)# name-server 10.8.3.8
```

To delete multiple servers you can enter them as multiple commands or as one command, as follows:

```
hostname(config)# dns server-group dnsgroup1
hostname(config-dns-server-group)# no name-server 10.5.1.1 10.8.3.8
```

Related Commands

Command	Description
domain-name	Sets the default domain name.
retries	Specifies the number of times to retry the list of DNS servers when the ASA does not receive a response.
timeout	Specifies the amount of time to wait before trying the next DNS server.
show running-config dns server-group	Shows one or all the existing dns-server-group configurations.

nat (global)

To configure twice NAT for IPv4, IPv6, or between IPv4 and IPv6 (NAT64), use the **nat** command in global configuration mode. To remove the twice NAT configuration, use the **no** form of this command.

For static NAT:

nat [(*real_ifc*,*mapped_ifc*)] [*line* | {**after-auto** [*line*]}]
source static {*real_obj* | **any**} {*mapped_obj* | **interface** [**ipv6**] | **any**}}
[**destination static** {*mapped_obj* | **interface** [**ipv6**]} {*real_obj* | **any**}]
[**service** {*real_src_mapped_dest_svc_obj* | **any**} *mapped_src_real_dest_svc_obj*] [**net-to-net**]
[**dns**] [**unidirectional** | [**no-proxy-arp**] [**route-lookup**]] [**inactive**] [**description** *desc*]

no nat [(*real_ifc*,*mapped_ifc*)] [*line* | {**after-auto** [*line*]}]
source static {*real_obj* | **any**} {*mapped_obj* | **interface** [**ipv6**] | **any**}}
[**destination static** {*mapped_obj* | **interface** [**ipv6**]} {*real_obj* | **any**}]
[**service** {*real_src_mapped_dest_svc_obj* | **any**} *mapped_src_real_dest_svc_obj*] [**net-to-net**]
[**dns**] [**unidirectional** | [**no-proxy-arp**] [**route-lookup**]] [**inactive**] [**description** *desc*]

For dynamic NAT:

nat [(*real_ifc*,*mapped_ifc*)] [*line* | {**after-auto** [*line*]}]
source dynamic {*real_obj* | **any**}
{[*mapped_obj*] [**pat-pool** *mapped_obj* [**round-robin**] [**extended**] [**flat** [**include-reserve**]]]
[**interface** [**ipv6**]]}
[**destination static** {*mapped_obj* | **interface** [**ipv6**]} {*real_obj* | **any**}]
[**service** {*mapped_dest_svc_obj real_dest_svc_obj*] [**dns**] [**unidirectional**] [**inactive**]
[**description** *desc*]

no nat [(*real_ifc*,*mapped_ifc*)] [*line* | {**after-auto** [*line*]}]
source dynamic {*real_obj* | **any**}
{[*mapped_obj*] [**pat-pool** *mapped_obj* [**round-robin**] [**extended**] [**flat** [**include-reserve**]]]
[**interface** [**ipv6**]]}
[**destination static** {*mapped_obj* | **interface** [**ipv6**]} {*real_obj* | **any**}]
[**service** {*mapped_dest_svc_obj real_dest_svc_obj*] [**dns**] [**unidirectional**] [**inactive**]
[**description** *desc*]

or

no nat {*line* | **after-auto** *line*}

Syntax Description

(*real_ifc*,*mapped_ifc*)	(Optional) Specifies the real and mapped interfaces. If you do not specify the real and mapped interfaces, all interfaces are used. You can also specify the keyword **any** for one or both of the interfaces. In transparent mode, you must specify the real and mapped interfaces; you cannot use **any**. Because twice NAT can translate both the source and destination addresses, these interfaces are better understood to be the source and destination interfaces.
after-auto	Inserts the rule at the end of section 3 of the NAT table, after the network object NAT rules. By default, twice NAT rules are added to section 1. You can insert a rule anywhere in section 3 using the *line* argument.

any	(Optional) Specifies a wildcard value. The main uses for **any** are: • Interfaces—You can use **any** for one or both interfaces (**(any,outside)**, for example). If you do not specify the interfaces, then **any** is the default. **any** is not available in transparent mode. • Static NAT source real and mapped IP addresses—You can specify **source static any any** to enable identity NAT for all addresses. • Dynamic NAT or PAT source real addresses—You can translate all addresses on the source interface by specifying **source dynamic any** *mapped_obj*. For static NAT, although **any** is also available for the real source port/mapped destination port, or for the source or destination real address (without **any** as the mapped address), these uses might result in unpredictable behavior. **Note** The definition of "any" traffic (IPv4 vs. IPv6) depends on the rule. Before the ASA performs NAT on a packet, the packet must be IPv6-to-IPv6 or IPv4-to-IPv4; with this prerequisite, the ASA can determine the value of **any** in a NAT rule. For example, if you configure a rule from "any" to an IPv6 server, and that server was mapped from an IPv4 address, then **any** means "any IPv6 traffic." If you configure a rule from "any" to "any," and you map the source to the interface IPv4 address, then **any** means "any IPv4 traffic" because the mapped interface address implies that the destination is also IPv4.
description *desc*	(Optional) Provides a description up to 200 characters.
destination	(Optional) Configures translation for the destination address. Although the main feature of twice NAT is the inclusion of the destination IP address, the destination address is optional. If you do specify the destination address, you can configure static translation for that address or just use identity NAT for it. You might want to configure twice NAT without a destination address to take advantage of some of the other qualities of twice NAT, including the use of network object groups for real addresses, or manually ordering of rules. For more information, see the CLI configuration guide.
dns	(Optional) Translates DNS replies. Be sure DNS inspection is enabled (**inspect dns**) (it is enabled by default). You cannot configure the **dns** keyword if you configure a **destination** address. See the CLI configuration guide for more information.
dynamic	Configures dynamic NAT or PAT for the source addresses. The destination translation is always static.
extended	(Optional) Enables extended PAT for a PAT pool. Extended PAT uses 65535 ports per *service*, as opposed to per IP address, by including the destination address and port in the translation information. Normally, the destination port and address are not considered when creating PAT translations, so you are limited to 65535 ports per PAT address. For example, with extended PAT, you can create a translation of 10.1.1.1:1027 when going to 192.168.1.7:23 as well as a translation of 10.1.1.1:1027 when going to 192.168.1.7:80.

flat [**include-reserve**]	(Optional) Enables use of the entire 1024 to 65535 port range when allocating ports. When choosing the mapped port number for a translation, the ASA uses the real source port number if it is available. However, without this option, if the real port is *not* available, by default the mapped ports are chosen from the same range of ports as the real port number: 1 to 511, 512 to 1023, and 1024 to 65535. To avoid running out of ports at the low ranges, configure this setting. To use the entire range of 1 to 65535, also specify the **include-reserve** keyword.
inactive	(Optional) To make this rule inactive without having to remove the command, use the **inactive** keyword. To reactivate it, reenter the whole command without the **inactive** keyword.
interface [**ipv6**]	(Optional) Uses the interface IP address as the mapped address. If you specify **ipv6**, then the IPv6 address of the interface is used. For the dynamic NAT source mapped address, if you specify a mapped object or group followed by the **interface** keyword, then the IP address of the mapped interface is only used if all other mapped addresses are already allocated. For dynamic PAT, you can specify **interface** alone for the source mapped address. For static NAT with port translation (source or destination), be sure to also configure the **service** keyword. For this option, you must configure a specific interface for the *mapped_ifc*. This option is not available in transparent mode.
line	(Optional) Inserts a rule anywhere in section 1 of the NAT table. By default, the NAT rule is added to the end of section 1 (see the CLI configuration guide for more information). If you want to add the rule into section 3 instead (after the network object NAT rules), then use the **after-auto** *line* option.
mapped_dest_svc_obj	(Optional) For dynamic NAT/PAT, specifies the mapped destination port (the destination translation is always static). See the **service** keyword for more information.

mapped_object	Identifies the mapped network object or object group (**object network** or **object-group network**). For dynamic NAT, you typically configure a larger group of addresses to be mapped to a smaller group. **Note** The mapped object or group cannot contain a subnet. You can share this mapped IP address across different dynamic NAT rules, if desired. You cannot use an object group with both IPv4 and IPv6 addresses; the object group must include only one type of address. For dynamic PAT, configure a group of addresses to be mapped to a single address. You can either translate the real addresses to a single mapped address of your choosing, or you can translate them to the mapped interface address. If you want to use the interface address, do not configure a network object for the mapped address; instead use the **interface** keyword. For static NAT, the mapping is typically one-to-one, so the real addresses have the same quantity as the mapped addresses. You can, however, have different quantities if desired. For more information, see the CLI configuration guide.
mapped_src_real_dest_svc_obj	(Optional) For static NAT, specifies the either the mapped source port, the real destination port, or both together. See the **service** keyword for more information.
net-to-net	(Optional) For static NAT 46, specify **net-to-net** to translate the first IPv4 address to the first IPv6 address, the second to the second, and so on. Without this option, the IPv4-embedded method is used. For a one-to-one translation, you must use this keyword.
no-proxy-arp	(Optional) For static NAT, disables proxy ARP for incoming packets to the mapped IP addresses.
pat-pool *mapped_obj*	(Optional) Enables a PAT pool of addresses; all addresses in the object are used as PAT addresses. You cannot use an object group with both IPv4 and IPv6 addresses; the object group must include only one type of address.
real_dest_svc_obj	(Optional) For dynamic NAT/PAT, specifies the real destination port (the destination translation is always static). See the **service** keyword for more information.
real_ifc	(Optional) Specifies the name of the interface where packets may originate. For source option. For the source option, the origin_ifc is the real interface. For the destination option, the real_ifc is the mapped interface.
real_object	Identifies the real network object or object group (**object network** or **object-group network**). You cannot use an object group with both IPv4 and IPv6 addresses; the object group must include only one type of address.
real_src_mapped_dest_svc_obj	(Optional) For static NAT, specifies the either the real source port, the mapped destination port, or both together. See the **service** keyword for more information.

round-robin	(Optional) Enables round-robin address allocation for a PAT pool. By default, all ports for a PAT address will be allocated before the next PAT address is used. The round-robin method assigns an address/port from each PAT address in the pool before returning to use the first address again, and then the second address, and so on.
route-lookup	(Optional) For identity NAT in routed mode, determines the egress interface using a route lookup instead of using the interface specified in the NAT command. If you do not specify interfaces in the NAT command, a route lookup is used by default.
service	(Optional) Specifies the port translation. • Dynamic NAT and PAT—Dynamic NAT and PAT do not support (additional) port translation. However, because the *destination* translation is always static, you can perform port translation for the destination port. A service object (**object service**) can contain both a source and destination port, but only the destination port is used in this case. If you specify the source port, it will be ignored. • Static NAT with port translation—You should specify *either* the source *or* the destination port for both service objects. You should only specify *both* the source and destination ports if your application uses a fixed source port (such as some DNS servers); but fixed source ports are rare. For source port translation, the objects must specify the source service. The order of the service objects in the command in this case is **service** *real_port mapped_port*. For destination port translation, the objects must specify the destination service. The order of the service objects in this case is **service** *mapped_port real_port*. In the rare case where you specify both the source and destination ports in the object, the first service object contains the real source port/mapped destination port; the second service object contains the mapped source port/real destination port. See the "Usage Guidelines" section for more information about "source" and "destination" terminology. For identity port translation, simply use the same service object for both the real and mapped ports (source and/or destination ports, depending on your configuration). The "not equal" (**neq**) operator is not supported. NAT only supports TCP or UDP. When translating a port, be sure the protocols in the real and mapped service objects are identical (both TCP or both UDP).
source	Configures translation for the source address.
static	Configures static NAT or static NAT with port translation.
unidirectional	(Optional) For static NAT, makes the translarion unidirection from the source to the destination; the destination addresses cannot initiate traffic to the source addresses. This option might be useful for testing purposes.

Defaults

- By default, the rule is added to the end of section 1 of the NAT table.
- The default value of *real_ifc* and *mapped_ifc* is **any**, which applies the rule to all interfaces.
- (8.3(1), 8.3(2), and 8.4(1)) The default behavior for identity NAT has proxy ARP disabled. You cannot configure this setting. (8.4(2) and later) The default behavior for identity NAT has proxy ARP enabled, matching other static NAT rules. You can disable proxy ARP if desired.

- If you specify an optional interface, then the ASA uses the NAT configuration to determine the egress interface. (8.3(1) through 8.4(1)) The only exception is for identity NAT, which always uses a route lookup, regardless of the NAT configuration. (8.4(2) and later) For identity NAT, the default behavior is to use the NAT configuration, but you have the option to always use a route lookup instead.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.3(1)	This command was introduced.
8.3(2)	When migrating from a pre-8.3 NAT exemption configuration, the keyword **unidirectional** is added for the resulting static identity NAT rule.
8.4(2)/8.5(1)	The **no-proxy-arp**, **route-lookup**, **pat-pool**, and **round-robin** keywords were added. The default behavior for identity NAT was changed to have proxy ARP enabled, matching other static NAT rules. For pre-8.3 configurations, the migration of NAT exempt rules (the **nat 0 access-list** command) to 8.4(2) and later now includes the following keywords to disable proxy ARP and to use a route lookup: **no-proxy-arp** and **route-lookup**. The **unidirectional** keyword that was used for migrating to 8.3(2) and 8.4(1) is no longer used for migration. When upgrading to 8.4(2) from 8.3(1), 8.3(2), and 8.4(1), all identity NAT configurations will now include the **no-proxy-arp** and **route-lookup** keywords, to maintain existing functionality. The **unidirectional** keyword is removed.
8.4(3)	The **extended**, **flat**, and **include-reserve** keywords were added. When using a PAT pool with round robin allocation, if a host has an existing connection, then subsequent connections from that host will use the same PAT IP address if ports are available. *This feature is not available in 8.5(1).*
9.0(1)	NAT now supports IPv6 traffic, as well as translating between IPv4 and IPv6. Translating between IPv4 and IPv6 is not supported in transparent mode. We added the **interface ipv6** option and the **net-to-net** option.

Usage Guidelines

Twice NAT lets you identify both the source and destination address in a single rule. Specifying both the source and destination addresses lets you specify that a source address should be translated to A when going to destination X, but be translated to B when going to destination Y, for example.

Note For static NAT, the rule is bidirectional, so be aware that "source" and "destination" are used in commands and descriptions throughout this guide even though a given connection might originate at the "destination" address. For example, if you configure static NAT with port translation, and specify the source address as a Telnet server, and you want all traffic going to that Telnet server to have the port translated from 2323 to 23, then in the command, you must specify the *source* ports to be translated (real: 23, mapped: 2323). You specify the source ports because you specified the Telnet server address as the **source** address.

The destination address is optional. If you specify the destination address, you can either map it to itself (identity NAT), or you can map it to a different address. The destination mapping is always a static mapping.

Twice NAT also lets you use service objects for static NAT with port translation; network object NAT only accepts inline definition.

For detailed information about the differences between twice NAT and network object NAT, see the CLI configuration guide.

Twice NAT rules are added to section 1 of the NAT rules table, or if specified, section 3. For more information about NAT ordering, see the CLI configuration guide.

Mapped Address Guidelines

The mapped IP address pool cannot include:

- The mapped interface IP address. If you specify **any** interface for the rule, then all interface IP addresses are disallowed. For interface PAT (routed mode only), use the **interface** keyword instead of the IP address.
- (Transparent mode) The management IP address.
- (Dynamic NAT) The standby interface IP address when VPN is enabled.
- Existing VPN pool addresses.

Prerequisites

- For both the real and mapped addresses, configure network objects or network object groups (the **object network** or **object-group network** command). Network object groups are particularly useful for creating a mapped address pool with discontinuous IP address ranges or multiple hosts or subnets. You cannot use an object group with both IPv4 and IPv6 addresses; the object group must include only one type of address.
- For static NAT with port translation, configure TCP or UDP service objects (the **object service** command).

Objects and object groups used in NAT cannot be undefined; they must include IP addresses.

Clearing Translation Sessions

If you change the NAT configuration, and you do not want to wait for existing translations to time out before the new NAT information is used, you can clear the translation table using **clear xlate** command. However, clearing the translation table disconnects all of the current connections.

PAT Pool Guidelines

- DNS rewrite is not applicable for PAT because multiple PAT rules are applicable for each A-record, and the PAT rule to use is ambiguous.

- If available, the real source port number is used for the mapped port. However, if the real port is *not* available, by default the mapped ports are chosen from the same range of ports as the real port number: 0 to 511, 512 to 1023, and 1024 to 65535. Therefore, ports below 1024 have only a small PAT pool that can be used. (8.4(3) and later, not including 8.5(1) or 8.6(1)) If you have a lot of traffic that uses the lower port ranges, you can now specify a flat range of ports to be used instead of the three unequal-sized tiers: either 1024 to 65535, or 1 to 65535.
- (8.4(3) and later, not including 8.5(1) or 8.6(1)) If you use the same PAT pool object in two separate rules, then be sure to specify the same options for each rule. For example, if one rule specifies extended PAT and a flat range, then the other rule must also specify extended PAT and a flat range.

Extended PAT for a PAT Pool Guidelines

- Many application inspections do not support extended PAT. See the configuration guide for a complete list of unsupported inspections.
- If you enable extended PAT for a dynamic PAT rule, then you cannot also use an address in the PAT pool as the PAT address in a separate static NAT-with-port-translation rule. For example, if the PAT pool includes 10.1.1.1, then you cannot create a static NAT-with-port-translation rule using 10.1.1.1 as the PAT address.
- If you use a PAT pool and specify an interface for fallback, you cannot specify extended PAT.
- For VoIP deployments that use ICE or TURN, do not use extended PAT. ICE and TURN rely on the PAT binding to be the same for all destinations.

Round robin for a PAT Pool Guidelines

- (8.4(3) and later, not including 8.5(1) or 8.6(1)) If a host has an existing connection, then subsequent connections from that host will use the same PAT IP address if ports are available. **Note**: This "stickiness" does not survive a failover. If the ASA fails over, then subsequent connections from a host may not use the initial IP address.
- (8.4(2), 8.5(1), and 8.6(1)) If a host has an existing connection, then subsequent connections from that host will likely use *different* PAT addresses for each connection because of the round robin allocation. In this case, you may have problems when accessing two websites that exchange information about the host, for example an e-commerce site and a payment site. When these sites see two different IP addresses for what is supposed to be a single host, the transaction may fail.

NAT and IPv6

You can use NAT to translate between IPv6 networks, and also to translate between IPv4 and IPv6 networks (routed mode only). We recommend the following best practices:

- NAT66 (IPv6-to-IPv6)—We recommend using static NAT. Although you can use dynamic NAT or PAT, IPv6 addresses are in such large supply, you do not have to use dynamic NAT. If you do not want to allow returning traffic, you can make the static NAT rule unidirectional (twice NAT only).
- NAT46 (IPv4-to-IPv6)—We recommend using static NAT. Because the IPv6 address space is so much larger than the IPv4 address space, you can easily accommodate a static translation. If you do not want to allow returning traffic, you can make the static NAT rule unidirectional (twice NAT only). When translating to an IPv6 subnet (/96 or lower), the resulting mapped address is an IPv4-embedded IPv6 address, where the 32-bits of the IPv4 address is embedded after the IPv6 prefix. For example, if the IPv6 prefix is a /96 prefix, then the IPv4 address is appended in the last 32-bits of the address. For example, if you map 192.168.1.0/24 to 201b::0/96, then 192.168.1.4 will be mapped to 201b::0.192.168.1.4 (shown with mixed notation). If the prefix is smaller, such as /64, then the IPv4 address is appended after the prefix, and a suffix of 0s is appended after the IPv4 address.

- NAT64 (IPv6-to-IPv4)—You may not have enough IPv4 addresses to accommodate the number of IPv6 addresses. We recommend using a dynamic PAT pool to provide a large number of IPv4 translations.

Examples

The following example includes a host on the 10.1.2.0/24 network that accesses two different servers. When the host accesses the server at 209.165.201.11, the real address is translated to 209.165.202.129:*port*. When the host accesses the server at 209.165.200.225, the real address is translated to 209.165.202.130:*port*.

```
hostname(config)# object network myInsideNetwork
hostname(config-network-object)# subnet 10.1.2.0 255.255.255.0

hostname(config)# object network DMZnetwork1
hostname(config-network-object)# subnet 209.165.201.0 255.255.255.224

hostname(config)# object network PATaddress1
hostname(config-network-object)# host 209.165.202.129

hostname(config)# nat (inside,dmz) source dynamic myInsideNetwork PATaddress1 destination
static DMZnetwork1 DMZnetwork1

hostname(config)# object network DMZnetwork2
hostname(config-network-object)# subnet 209.165.200.224 255.255.255.224

hostname(config)# object network PATaddress2
hostname(config-network-object)# host 209.165.202.130

hostname(config)# nat (inside,dmz) source dynamic myInsideNetwork PATaddress2 destination
static DMZnetwork2 DMZnetwork2
```

The following example shows the use of source and destination ports. The host on the 10.1.2.0/24 network accesses a single host for both web services and Telnet services. When the host accesses the server for Telnet services, the real address is translated to 209.165.202.129:*port*. When the host accesses the same server for web services, the real address is translated to 209.165.202.130:*port*.

```
hostname(config)# object network myInsideNetwork
hostname(config-network-object)# subnet 10.1.2.0 255.255.255.0

hostname(config)# object network TelnetWebServer
hostname(config-network-object)# host 209.165.201.11

hostname(config)# object network PATaddress1
hostname(config-network-object)# host 209.165.202.129

hostname(config)# object service TelnetObj
hostname(config-network-object)# service tcp destination eq telnet

hostname(config)# nat (inside,outside) source dynamic myInsideNetwork PATaddress1
destination static TelnetWebServer TelnetWebServer service TelnetObj TelnetObj

hostname(config)# object network PATaddress2
hostname(config-network-object)# host 209.165.202.130

hostname(config)# object service HTTPObj
hostname(config-network-object)# service tcp destination eq http

hostname(config)# nat (inside,outside) source dynamic myInsideNetwork PATaddress2
destination static TelnetWebServer TelnetWebServer service HTTPObj HTTPObj
```

The following example shows the use of static interface NAT with port translation. Hosts on the outside access an FTP server on the inside by connecting to the outside interface IP address with destination port 65000 through 65004. The traffic is untranslated to the internal FTP server at 192.168.10.100:6500 through :65004. Note that you specify the source port range in the service object (and not the destination port) because you want to translate the source address and port as identified in the command; the destination port is "any." Because static NAT is bidirectional, "source" and "destination" refers primarily to the command keywords; the actual source and destination address and port in a packet depends on which host sent the packet. In this example, connections are originated from outside to inside, so the "source" address and port of the FTP server is actually the destination address and port in the originating packet.

```
hostname(config)# object service FTP_PASV_PORT_RANGE
hostname(config-service-obvject)# service tcp source range 65000 65004

hostname(config)# object network HOST_FTP_SERVER
hostname(config-network-obvject)# host 192.168.10.100

hostname(config)# nat (inside,outside) source static HOST_FTP_SERVER interface service
FTP_PASV_PORT_RANGE FTP_PASV_PORT_RANGE
```

The following example configures dynamic NAT for an IPv6 inside network 2001:DB8:AAAA::/96 when accessing servers on the IPv4 209.165.201.1/27 network as well as servers on the 203.0.113.0/24 network:

```
hostname(config)# object network INSIDE_NW
hostname(config-network-object)# subnet 2001:DB8:AAAA::/96

hostname(config)# object network MAPPED_1
hostname(config-network-object)# range 209.165.200.225 209.165.200.254

hostname(config)# object network MAPPED_2
hostname(config-network-object)# range 209.165.202.129 209.165.200.158

hostname(config)# object network SERVERS_1
hostname(config-network-object)# subnet 209.165.201.0 255.255.255.224

hostname(config)# object network SERVERS_2
hostname(config-network-object)# subnet 203.0.113.0 255.255.255.0

hostname(config)# nat (inside,outside) source dynamic INSIDE_NW MAPPED_1 destination
static SERVERS_1 SERVERS_1
hostname(config)# nat (inside,outside) source dynamic INSIDE_NW MAPPED_2 destination
static SERVERS_2 SERVERS_2
```

The following example configures interface PAT for inside network 192.168.1.0/24 when accessing outside IPv6 Telnet server 2001:DB8::23, and Dynamic PAT using a PAT pool when accessing any server on the 2001:DB8:AAAA::/96 network.

```
hostname(config)# object network INSIDE_NW
hostname(config-network-object)# subnet 192.168.1.0 255.255.255.0

hostname(config)# object network PAT_POOL
hostname(config-network-object)# range 2001:DB8:AAAA::1 2001:DB8:AAAA::200

hostname(config)# object network TELNET_SVR
hostname(config-network-object)# host 2001:DB8::23

hostname(config)# object service TELNET
hostname(config-service-object)# service tcp destination eq 23

hostname(config)# object network SERVERS
hostname(config-network-object)# subnet 2001:DB8:AAAA::/96

hostname(config)# nat (inside,outside) source dynamic INSIDE_NW interface ipv6 destination
static TELNET_SVR TELNET_SVR service TELNET TELNET
hostname(config)# nat (inside,outside) source dynamic INSIDE_NW pat-pool PAT_POOL
destination static SERVERS SERVERS
```

Related Commands

Command	Description
clear configure nat	Removes the NAT configuration (both twice NAT and network object NAT).
show nat	Displays NAT policy statistics.
show nat pool	Displays information about NAT pools.
show running-config nat	Shows the NAT configuration.
show xlate	Displays NAT session (xlate) information.

nat (object)

To configure NAT for a network object, use the **nat** command in object network configuration mode. To remove the NAT configuration, use the **no** form of this command.

For dynamic NAT and PAT:

nat [(*real_ifc*,*mapped_ifc*)] **dynamic**
{*mapped_inline_host_ip* [**interface** [**ipv6**]] | [*mapped_obj*] [**pat-pool** *mapped_obj* [**round-robin**] [**extended**] [**flat** [**include-reserve**]]] [**interface** [**ipv6**]]} [**dns**]

no nat [(*real_ifc*,*mapped_ifc*)] **dynamic**
{*mapped_inline_host_ip* [**interface** [**ipv6**]] | [*mapped_obj*] [**pat-pool** *mapped_obj* [**round-robin**] [**extended**] [**flat** [**include-reserve**]]] [**interface** [**ipv6**]]} [**dns**]

For static NAT and static NAT with port translation:

nat [(*real_ifc*,*mapped_ifc*)] **static** {*mapped_inline_ip* | *mapped_obj* | **interface** [**ipv6**]} [**net-to-net**] [**dns** | **service** {**tcp** | **udp**} *real_port mapped_port*] [**no-proxy-arp**] [**route-lookup**]

no nat [(*real_ifc*,*mapped_ifc*)] **static** {*mapped_inline_ip* | *mapped_obj* | **interface** [**ipv6**]} [**net-to-net**] [**dns** | **service** {**tcp** | **udp**} *real_port mapped_port*] [**no-proxy-arp**] [**route-lookup**]

Syntax Description

(*real_ifc*,*mapped_ifc*)	(Optional) For static NAT, specifies the real and mapped interfaces. If you do not specify the real and mapped interfaces, all interfaces are used. You can also specify the keyword **any** for one or both of the interfaces. Be sure to include the parentheses in your command. In transparent mode, you must specify the real and mapped interfaces; you cannot use **any**.
dns	(Optional) Translates DNS replies. Be sure DNS inspection (**inspect dns**) is enabled (it is enabled by default). This option is not available if you specify the **service** keyword (for static NAT). For more information, see the CLI configuration guide.
dynamic	Configures dynamic NAT or PAT.
extended	(Optional) Enables extended PAT for a PAT pool. Extended PAT uses 65535 ports per *service*, as opposed to per IP address, by including the destination address and port in the translation information. Normally, the destination port and address are not considered when creating PAT translations, so you are limited to 65535 ports per PAT address. For example, with extended PAT, you can create a translation of 10.1.1.1:1027 when going to 192.168.1.7:23 as well as a translation of 10.1.1.1:1027 when going to 192.168.1.7:80.
flat [**include-reserve**]	(Optional) Enables use of the entire 1024 to 65535 port range when allocating ports. When choosing the mapped port number for a translation, the ASA uses the real source port number if it is available. However, without this option, if the real port is *not* available, by default the mapped ports are chosen from the same range of ports as the real port number: 1 to 511, 512 to 1023, and 1024 to 65535. To avoid running out of ports at the low ranges, configure this setting. To use the entire range of 1 to 65535, also specify the **include-reserve** keyword.

interface [**ipv6**]	(Optional) For dynamic NAT, if you specify a mapped IP address, object, or group followed by the **interface** keyword, then the IP address of the mapped interface is only used if all of the other mapped addresses are already allocated. For dynamic PAT, if you specify the **interface** keyword instead of a mapped IP address, object, or group, then you use the interface IP address for the mapped IP address. You must use this keyword when you want to use the interface IP address; you cannot enter it inline or as an object. If you specify **ipv6**, then the IPv6 address of the interface is used. For static NAT with port translation, you can specify the **interface** keyword if you also configure the **service** keyword. For this option, you must configure a specific interface for the *mapped_ifc*. You cannot specify **interface** in transparent mode.
mapped_inline_host_ip	Specifies the mapped address as an inline value. If you specify **dynamic**, then using a host IP address configures dynamic PAT.
mapped_inline_ip	For static NAT, specifies the mapped IP address as an inline value. The netmask or range for the mapped network is the same as that of the real network. For example, if the real network is a host, then this address will be a host address. In the case of a range, then the mapped addresses include the same number of addresses as the real range. For example, if the real address is defined as a range from 10.1.1.1 through 10.1.1.6, and you specify 172.20.1.1 as the mapped address, then the mapped range will include 172.20.1.1 through 172.20.1.6.
mapped_obj	Specifies the mapped IP address(es) as a network object (**object network**) or object group (**object-group network**). You cannot use an object group with both IPv4 and IPv6 addresses; the object group must include only one type of address. For dynamic NAT, the object or group cannot contain a subnet. You can share this mapped object across different dynamic NAT rules, if desired. See the "Mapped Address Guidelines" section on page 36-34 for information about disallowed mapped IP addresses. For static NAT, typically you configure the same number of mapped addresses as real addresses for a one-to-one mapping. You can, however, have a mismatched number of addresses. For more information, see the CLI configuration guide.
mapped_port	(Optional) Specifies the mapped TCP or UDP port. You can specify ports by either a literal name or a number in the range of 0 to 65535.
net-to-net	(Optional) For NAT 46, specify **net-to-net** to translate the first IPv4 address to the first IPv6 address, the second to the second, and so on. Without this option, the IPv4-embedded method is used. For a one-to-one translation, you must use this keyword.
no-proxy-arp	(Optional) For static NAT, disables proxy ARP for incoming packets to the mapped IP addresses.
pat-pool *mapped_obj*	(Optional) Enables a PAT pool of addresses; all addresses in the object are used as PAT addresses. You cannot use an object group with both IPv4 and IPv6 addresses; the object group must include only one type of address.

real_port	(Optional) For static NAT, specifies the real TCP or UDP port. You can specify ports by either a literal name or a number in the range of 0 to 65535.
round-robin	(Optional) Enables round-robin address allocation for a PAT pool. By default, all ports for a PAT address will be allocated before the next PAT address is used. The round-robin method assigns an address/port from each PAT address in the pool before returning to use the first address again, and then the second address, and so on.
route-lookup	(Optional) For identity NAT in routed mode, determines the egress interface using a route lookup instead of using the interface specified in the NAT command. If you do not specify interfaces in the NAT command, a route lookup is used by default.
service {**tcp** | **udp**}	(Optional) For static NAT with port translation, specifies the protocol for port translation. Only TCP and UDP are supported.
static	Configures static NAT or static NAT with port translation.

Defaults

- The default value of *real_ifc* and *mapped_ifc* is **any**, which applies the rule to all interfaces.
- (8.3(1), 8.3(2), and 8.4(1)) The default behavior for identity NAT has proxy ARP disabled. You cannot configure this setting. (8.4(2) and later) The default behavior for identity NAT has proxy ARP enabled, matching other static NAT rules. You can disable proxy ARP if desired.
- If you specify an optional interface, then the ASA uses the NAT configuration to determine the egress interface. (8.3(1) through 8.4(1)) The only exception is for identity NAT, which always uses a route lookup, regardless of the NAT configuration. (8.4(2) and later) For identity NAT, the default behavior is to use the NAT configuration, but you have the option to always use a route lookup instead.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Object network configuration	•	•	•	•	—

Command History

Release	Modification
8.3(1)	This command was introduced.
8.4(2)/8.5(1)	The **no-proxy-arp**, **route-lookup**, **pat-pool**, and **round-robin** keywords were added. The default behavior for identity NAT was changed to have proxy ARP enabled, matching other static NAT rules. When upgrading to 8.4(2) from 8.3(1), 8.3(2), and 8.4(1), all identity NAT configurations will now include the **no-proxy-arp** and **route-lookup** keywords, to maintain existing functionality.

Release	Modification
8.4(3)	The **extended**, **flat**, and **include-reserve** keywords were added. When using a PAT pool with round robin allocation, if a host has an existing connection, then subsequent connections from that host will use the same PAT IP address if ports are available. *This feature is not available in 8.5(1).*
9.0(1)	NAT now supports IPv6 traffic, as well as translating between IPv4 and IPv6. Translating between IPv4 and IPv6 is not supported in transparent mode. We added the **interface ipv6** option and the **net-to-net** option.

Usage Guidelines

When a packet enters the ASA, both the source and destination IP addresses are checked against the network object NAT rules. The source and destination address in the packet can be translated by separate rules if separate matches are made. These rules are not tied to each other; different combinations of rules can be used depending on the traffic.

Because the rules are never paired, you cannot specify that a source address should be translated to A when going to destination X, but be translated to B when going to destination Y. Use twice NAT for that kind of functionality (twice NAT lets you identify the source and destination address in a single rule).

For detailed information about the differences between twice NAT and network object NAT, see the CLI configuration guide.

Network object NAT rules are added to section 2 of the NAT rules table. For more information about NAT ordering, see the CLI configuration guide.

Depending on the configuration, you can configure the mapped address inline if desired or you can create a network object or network object group for the mapped address (the **object network** or **object-group network** command). Network object groups are particularly useful for creating a mapped address pool with discontinous IP address ranges or multiple hosts or subnets. You cannot use an object group with both IPv4 and IPv6 addresses; the object group must include only one type of address.

Objects and object groups used in NAT cannot be undefined; they must include IP addresses.

You can only define a single NAT rule for a given object; if you want to configure multiple NAT rules, you need to create multiple objects that specify the same IP address, for example, **object network obj-10.10.10.1-01**, **object network obj-10.10.10.1-02**, and so on.

Mapped Address Guidelines

The mapped IP address pool cannot include:

- The mapped interface IP address. If you specify **any** interface for the rule, then all interface IP addresses are disallowed. For interface PAT (routed mode only), use the **interface** keyword instead of the IP address.
- (Transparent mode) The management IP address.
- (Dynamic NAT) The standby interface IP address when VPN is enabled.
- Existing VPN pool addresses.

Clearing Translation Sessions

If you change the NAT configuration, and you do not want to wait for existing translations to time out before the new NAT information is used, you can clear the translation table using **clear xlate** command. However, clearing the translation table disconnects all of the current connections.

PAT Pool Guidelines

- DNS rewrite is not applicable for PAT because multiple PAT rules are applicable for each A-record, and the PAT rule to use is ambiguous.
- If available, the real source port number is used for the mapped port. However, if the real port is *not* available, by default the mapped ports are chosen from the same range of ports as the real port number: 0 to 511, 512 to 1023, and 1024 to 65535. Therefore, ports below 1024 have only a small PAT pool that can be used. (8.4(3) and later, not including 8.5(1) or 8.6(1)) If you have a lot of traffic that uses the lower port ranges, you can now specify a flat range of ports to be used instead of the three unequal-sized tiers: either 1024 to 65535, or 1 to 65535.
- (8.4(3) and later, not including 8.5(1) or 8.6(1)) If you use the same PAT pool object in two separate rules, then be sure to specify the same options for each rule. For example, if one rule specifies extended PAT and a flat range, then the other rule must also specify extended PAT and a flat range.

Extended PAT for a PAT Pool Guidelines

- Many application inspections do not support extended PAT. See the configuration guide for a complete list of unsupported inspections.
- If you enable extended PAT for a dynamic PAT rule, then you cannot also use an address in the PAT pool as the PAT address in a separate static NAT-with-port-translation rule. For example, if the PAT pool includes 10.1.1.1, then you cannot create a static NAT-with-port-translation rule using 10.1.1.1 as the PAT address.
- If you use a PAT pool and specify an interface for fallback, you cannot specify extended PAT.
- For VoIP deployments that use ICE or TURN, do not use extended PAT. ICE and TURN rely on the PAT binding to be the same for all destinations.

Round robin for a PAT Pool Guidelines

- (8.4(3) and later, not including 8.5(1) or 8.6(1)) If a host has an existing connection, then subsequent connections from that host will use the same PAT IP address if ports are available. **Note**: This "stickiness" does not survive a failover. If the ASA fails over, then subsequent connections from a host may not use the initial IP address.
- (8.4(2), 8.5(1), and 8.6(1)) If a host has an existing connection, then subsequent connections from that host will likely use *different* PAT addresses for each connection because of the round robin allocation. In this case, you may have problems when accessing two websites that exchange information about the host, for example an e-commerce site and a payment site. When these sites see two different IP addresses for what is supposed to be a single host, the transaction may fail.
- Round robin, especially when combined with extended PAT, can consume a large amount of memory.

NAT and IPv6

You can use NAT to translate between IPv6 networks, and also to translate between IPv4 and IPv6 networks (routed mode only). We recommend the following best practices:

- NAT66 (IPv6-to-IPv6)—We recommend using static NAT. Although you can use dynamic NAT or PAT, IPv6 addresses are in such large supply, you do not have to use dynamic NAT. If you do not want to allow returning traffic, you can make the static NAT rule unidirectional (twice NAT only).
- NAT46 (IPv4-to-IPv6)—We recommend using static NAT. Because the IPv6 address space is so much larger than the IPv4 address space, you can easily accommodate a static translation. If you do not want to allow returning traffic, you can make the static NAT rule unidirectional (twice NAT only). When translating to an IPv6 subnet (/96 or lower), the resulting mapped address is an IPv4-embedded IPv6 address, where the 32-bits of the IPv4 address is embedded after the IPv6

prefix. For example, if the IPv6 prefix is a /96 prefix, then the IPv4 address is appended in the last 32-bits of the address. For example, if you map 192.168.1.0/24 to 201b::0/96, then 192.168.1.4 will be mapped to 201b::0.192.168.1.4 (shown with mixed notation). If the prefix is smaller, such as /64, then the IPv4 address is appended after the prefix, and a suffix of 0s is appended after the IPv4 address.

- NAT64 (IPv6-to-IPv4)—You may not have enough IPv4 addresses to accommodate the number of IPv6 addresses. We recommend using a dynamic PAT pool to provide a large number of IPv4 translations.

Examples

Dynamic NAT Examples

The following example configures dynamic NAT that hides 192.168.2.0 network behind a range of outside addresses 2.2.2.1-2.2.2.10:

```
hostname(config)# object network my-range-obj
hostname(config-network-object)# range 2.2.2.1 2.2.2.10
hostname(config)# object network my-inside-net
hostname(config-network-object)# subnet 192.168.2.0 255.255.255.0
hostname(config-network-object)# nat (inside,outside) dynamic my-range-obj
```

The following example configures dynamic NAT with dynamic PAT backup. Hosts on inside network 10.76.11.0 are mapped first to the nat-range1 pool (10.10.10.10-10.10.10.20). After all addresses in the nat-range1 pool are allocated, dynamic PAT is performed using the pat-ip1 address (10.10.10.21). In the unlikely event that the PAT translations are also use up, dynamic PAT is performed using the outside interface address.

```
hostname(config)# object network nat-range1
hostname(config-network-object)# range 10.10.10.10 10.10.10.20

hostname(config-network-object)# object network pat-ip1
hostname(config-network-object)# host 10.10.10.21

hostname(config-network-object)# object-group network nat-pat-grp
hostname(config-network-object)# network-object object nat-range1
hostname(config-network-object)# network-object object pat-ip1

hostname(config-network-object)# object network my_net_obj5
hostname(config-network-object)# subnet 10.76.11.0 255.255.255.0
hostname(config-network-object)# nat (inside,outside) dynamic nat-pat-grp interface
```

The following example configures dynamic NAT with dynamic PAT backup to translate IPv6 hosts to IPv4. Hosts on inside network 2001:DB8::/96 are mapped first to the IPv4_NAT_RANGE pool (209.165.201.1 to 209.165.201.30). After all addresses in the IPv4_NAT_RANGE pool are allocated, dynamic PAT is performed using the IPv4_PAT address (209.165.201.31). In the event that the PAT translations are also used up, dynamic PAT is performed using the outside interface address.

```
hostname(config)# object network IPv4_NAT_RANGE
hostname(config-network-object)# range 209.165.201.1 209.165.201.30

hostname(config-network-object)# object network IPv4_PAT
hostname(config-network-object)# host 209.165.201.31

hostname(config-network-object)# object-group network IPv4_GROUP
hostname(config-network-object)# network-object object IPv4_NAT_RANGE
hostname(config-network-object)# network-object object IPv4_PAT

hostname(config-network-object)# object network my_net_obj5
hostname(config-network-object)# subnet 2001:DB8::/96
hostname(config-network-object)# nat (inside,outside) dynamic IPv4_GROUP interface
```

Dynamic PAT Example

The following example configures dynamic PAT that hides the 192.168.2.0 network behind address 2.2.2.2:

```
hostname(config)# object network my-inside-net
hostname(config-network-object)# subnet 192.168.2.0 255.255.255.0
hostname(config-network-object)# nat (inside,outside) dynamic 2.2.2.2
```

The following example configures dynamic PAT that hides the 192.168.2.0 network behind the outside interface address:

```
hostname(config)# object network my-inside-net
hostname(config-network-object)# subnet 192.168.2.0 255.255.255.0
hostname(config-network-object)# nat (inside,outside) dynamic interface
```

The following example configures dynamic PAT with a PAT pool to translate the inside IPv6 network to an outside IPv4 network:

```
hostname(config)# object network IPv4_POOL
hostname(config-network-object)# range 203.0.113.1 203.0.113.254
hostname(config)# object network IPv6_INSIDE
hostname(config-network-object)# subnet 2001:DB8::/96
hostname(config-network-object)# nat (inside,outside) dynamic pat-pool IPv4_POOL
```

Static NAT Examples

The following example configures static NAT for the real host 1.1.1.1 on the inside to 2.2.2.2 on the outside with DNS rewrite enabled.

```
hostname(config)# object network my-host-obj1
hostname(config-network-object)# host 1.1.1.1
hostname(config-network-object)# nat (inside,outside) static 2.2.2.2 dns
```

The following example configures static NAT for the real host 1.1.1.1 on the inside to 2.2.2.2 on the outside using a mapped object.

```
hostname(config)# object network my-mapped-obj
hostname(config-network-object)# host 2.2.2.2

hostname(config-network-object)# object network my-host-obj1
hostname(config-network-object)# host 1.1.1.1
hostname(config-network-object)# nat (inside,outside) static my-mapped-obj
```

The following example configures static NAT with port translation for 1.1.1.1 at TCP port 21 to the outside interface at port 2121.

```
hostname(config)# object network my-ftp-server
hostname(config-network-object)# host 1.1.1.1
hostname(config-network-object)# nat (inside,outside) static interface service tcp 21 2121
```

The following example maps an inside IPv4 network to an outside IPv6 network.

```
hostname(config)# object network inside_v4_v6
hostname(config-network-object)# subnet 10.1.1.0 255.255.255.0
hostname(config-network-object)# nat (inside,outside) static 2001:DB8::/96
```

The following example maps an inside IPv6 network to an outside IPv6 network.

```
hostname(config)# object network inside_v6
hostname(config-network-object)# subnet 2001:DB8:AAAA::/96
hostname(config-network-object)# nat (inside,outside) static 2001:DB8:BBBB::/96
```

Identity NAT Examples

The following example maps a host address to itself using an inline mapped address:

```
hostname(config)# object network my-host-obj1
hostname(config-network-object)# host 10.1.1.1
hostname(config-network-object)# nat (inside,outside) static 10.1.1.1
```

The following example maps a host address to itself using a network object:

```
hostname(config)# object network my-host-obj1-identity
hostname(config-network-object)# host 10.1.1.1

hostname(config-network-object)# object network my-host-obj1
hostname(config-network-object)# host 10.1.1.1
hostname(config-network-object)# nat (inside,outside) static my-host-obj1-identity
```

Related Commands

Command	Description
clear configure nat	Removes the NAT configuration (both twice NAT and network object NAT).
show nat	Displays NAT policy statistics.
show nat pool	Displays information about NAT pools.
show running-config nat	Displays the NAT configuration.
show xlate	Displays xlate information.

nat (vpn load-balancing)

To set the IP address to which NAT translates the IP address of this device, use the **nat** command in VPN load-balancing configuration mode. To disable this NAT translation, use the **no** form of this command.

nat *ip-address*

no nat [*ip-adddress*]

Syntax Description

ip-address	The IP address to which you want this NAT to translate the IP address of this device.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
VPN load-balancing configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You must first use the **vpn load-balancing** command to enter VPN load-balancing mode.

In the **no nat** form of the command, if you specify the optional *ip-address* value, the IP address must match the existing NAT IP address in the running configuration.

Examples

The following is an example of a VPN load-balancing command sequence that includes a **nat** command that sets the NAT-translated address to 192.168.10.10:

```
hostname(config)# interface GigabitEthernet 0/1
hostname(config-if)# ip address 209.165.202.159 255.255.255.0
hostname(config)# nameif test
hostname(config)# interface GigabitEthernet 0/2
hostname(config-if)# ip address 209.165.201.30 255.255.255.0
hostname(config)# nameif foo
hostname(config)# vpn load-balancing
hostname(config-load-balancing)# nat 192.168.10.10
hostname(config-load-balancing)# priority 9
hostname(config-load-balancing)# interface lbpublic test
hostname(config-load-balancing)# interface lbprivate foo
hostname(config-load-balancing)# cluster ip address 209.165.202.224
```

```
hostname(config-load-balancing)# cluster port 9023
hostname(config-load-balancing)# participate
hostname(config-load-balancing)# participate
```

Related Commands

Command	Description
vpn load-balancing	Enter VPN load-balancing mode.

nat-assigned-to-public-ip

To automatically translate a VPN peer's local IP address back to the peer's real IP address, use the **nat-assigned-to-public-ip** command in tunnel-group general-attributes configuration mode. To disable the NAT rules, use the **no** form of this command.

nat-assigned-to-public-ip *interface*

no nat-assigned-to-public-ip *interface*

Syntax Description

interface	Specifies the interface where you want to apply NAT.

Command Default

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Tunnel-group general-attributes configuration	•	•	•	—	—

Command History

Release	Modification
8.4(3)	We introduced this command.

Usage Guidelines

In rare situations, you might want to use a VPN peer's real IP address on the inside network instead of an assigned local IP address. Normally with VPN, the peer is given an assigned local IP address to access the inside network. However, you might want to translate the local IP address back to the peer's real public IP address if, for example, your inside servers and network security is based on the peer's real IP address.

You can enable this feature on one interface per tunnel group. Object NAT rules are dynamically added and deleted when the VPN session is established or disconnected. You can view the rules using the **show nat** command.

Data Flow

The following steps describe the packet flow through the ASA when this feature is enabled:

1. The VPN peer sends a packet to the ASA.

   The outer source/destination consists of the peer public IP address/ASA IP address. The encrypted inner source/destination consists of the VPN-assigned IP address/inside server address.

2. The ASA decrypts the packet (removing the outer source/destination).
3. The ASA performs a route lookup for the inside server, and sends the packet to the inside interface.

4. The automatically created VPN NAT policy translates the VPN-assigned source IP address to the peer public IP address.
5. The ASA sends the translated packet to the server.
6. The server responds to the packet, and sends it to the peer's public IP address.
7. The ASA receives the response, and untranslates the destination IP address to the VPN-assigned IP address.
8. The ASA forwards the untranslated packet to the outside interface where it is encrypted, and an outer source/destination is added consisting of the ASA IP address/peer public IP address.
9. The ASA sends the packet back to the peer.
10. The peer decrypts and processes the data.

Limitations

Because of routing issues, we do not recommend using this feature unless you know you need this feature; contact Cisco TAC to confirm feature compatibility with your network. See the following limitations:

- Only supports Cisco IPsec and AnyConnect client.
- Return traffic to the public IP addresses must be routed back to the ASA so the NAT policy and VPN policy can be applied.
- If you enable reverse route injection (see the **set reverse-route** command), only the VPN-assigned IP address is advertised.
- Does not support load-balancing (because of routing issues).
- Does not support roaming (public IP changing).

Examples

The following example enables NAT to the public IP for the "vpnclient" tunnel group:

```
hostname# ip local pool client 10.1.226.4-10.1.226.254
hostname# tunnel-group vpnclient type remote-access
hostname# tunnel-group vpnclient general-attributes
hostname(config-tunnel-general)# address-pool client
hostname(config-tunnel-general)# nat-assigned-to-public-ip inside
```

The following is sample output from the **show nat detail** command showing an automatic NAT rule from peer 209.165.201.10 with assigned IP 10.1.226.174:

```
hostname# show nat detail

 Auto NAT Policies (Section 2)
 1 (outside) to (inside) source static _vpn_nat_10.1.226.174 209.165.201.10
     translate_hits = 0, untranslate_hits = 0
     Source - Origin: 10.1.226.174/32, Translated: 209.165.201.10/32
```

Related Commands

Command	Description
show nat	Shows current xlates.
tunnel-group general-attributes	Sets general attributes for a tunnel group.
debug menu webvpn 99	For AnyConnect SSL sessions, the VPN NAT interface is stored in the session.

Command	Description
debug menu ike 2 *peer_ip*	For Cisco IPsec client sessions, the VPN NAT interface is stored in the SA.
debug nat 3	Shows debug messages for NAT.

nat-rewrite

To enable NAT rewrite for IP addressess embedded in the A-record of a DNS response, use the **nat-rewrite** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

nat-rewrite

no nat-rewrite

Syntax Description

This command has no arguments or keywords.

Defaults

NAT rewrite is enabled by default. This feature can be enabled when **inspect dns** is configured even if a **policy-map type inspect dns** is not defined. To disable, **no nat-rewrite** must explicitly be stated in the policy map configuration. If **inspect dns** is not configured, NAT rewrite is not performed.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This feature performs NAT translation of A-type Resource Record (RR) in a DNS response.

Examples

The following example shows how to enable NAT rewrite in a DNS inspection policy map:

```
hostname(config)# policy-map type inspect dns preset_dns_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# nat-rewrite
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.

Command	Description
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

nbns-server (tunnel-group webvpn attributes mode)

To configure an NBNS server, use the **nbns-server** command in tunnel-group webvpn configuration mode. To remove the NBNS server from the configuration, use the **no** form of this command.

The ASA queries NBNS servers to map NetBIOS names to IP addresses. WebVPN requires NetBIOS to access or share files on remote systems.

nbns-server {*ipaddr* | *hostname*} [**master**] [**timeout** *timeout*] [**retry** *retries*]

no nbns-server

Syntax Description

hostname	Specifies the hostname for the NBNS server.
ipaddr	Specifies the IP address for the NBNS server.
master	Indicates that this is a master browser, rather than a WINS server.
retry	Indicates that a retry value follows.
retries	Specifies the number of times to retry queries to NBNS servers. The ASA recycles through the list of servers the number of times you specify here before sending an error message. The default value is 2; the range is 1 through 10.
timeout	Indicates that a timeout value follows.
timeout	Specifies the amount of time the ASA waits before sending the query again, to the same server if there is only one, or another server if there are multiple NBNS servers. The default timeout is 2 seconds; the range is 1 to 30 seconds.

Defaults

No NBNS server is configured by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tunnel-group webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	Moved from webvpn mode to tunnel-group webvpn configuration mode.

Usage Guidelines

In Release 7.1(1), if you enter this command in webvpn configuration mode, it is transformed to the same command in tunnel-group webvpn-attributes configuration mode.

Maximum of 3 server entries. The first server you configure is the primary server, and the others are backups, for redundancy.

Use the **no** option to remove the matching entry from the configuration.

Examples

The following example shows how to configure the tunnel-group "test" with an NBNS server that is a master browser with an IP address of 10.10.10.19, a timeout value of 10 seconds, and 8 retries. It also shows how to configure an NBNS WINS server with an IP address of 10.10.10.24, a timeout value of 15 seconds, and 8 retries.

```
hostname(config)# tunnel-group test type webvpn
hostname(config)# tunnel-group test webvpn-attributes
hostname(config-tunnel-webvpn)# nbns-server 10.10.10.19 master timeout 10 retry 8
hostname(config-tunnel-webvpn)# nbns-server 10.10.10.24 timeout 15 retry 8
hostname(config-tunnel-webvpn)#
```

Related Commands

Command	Description
clear configure group-policy	Removes the configuration for a particular group policy or for all group policies.
show running-config group-policy	Displays the running configuration for a particular group policy or for all group policies.
tunnel-group webvpn-attributes	Specifies the WebVPN attributes for the named tunnel-group.

nbns-server (webvpn mode)

To configure an NBNS server, use the **nbns-server** command in tunnel-group webvpn configuration mode. To remove the NBNS server from the configuration, use the **no** form of this command.

The ASA queries NBNS servers to map NetBIOS names to IP addresses. WebVPN requires NetBIOS to access or share files on remote systems.

nbns-server {*ipaddr* | *hostname*} [**master**] [**timeout** *timeout*] [**retry** *retries*]

no nbns-server

Syntax Description

hostname	Specifies the hostname for the NBNS server.
ipaddr	Specifies the IP address for the NBNS server.
master	Indicates that this is a master browser, rather than a WINS server.
retry	Indicates that a retry value follows.
retries	Specifies the number of times to retry queries to NBNS servers. The ASA recycles through the list of servers the number of times you specify here before sending an error message. The default value is 2; the range is 1 through 10.
timeout	Indicates that a timeout value follows.
timeout	Specifies the amount of time the ASA waits before sending the query again, to the same server if there is only one, or another server if there are multiple NBNS servers. The default timeout is 2 seconds; the range is 1 to 30 seconds.

Defaults

No NBNS server is configured by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tunnel-group webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	Moved from webvpn mode to tunnel-group webvpn configuration mode.

Usage Guidelines

This command is deprecated in webvpn configuration mode. The nbns-server command in tunnel-group webvpn-attributes configuration mode replaces it. In Release 7.1(1), if you enter this command in webvpn configuration mode, it is transformed to the same command in tunnel-group webvpn-attributes mode.

Maximum of 3 server entries. The first server you configure is the primary server, and the others are backups, for redundancy.

Use the **no** option to remove the matching entry from the configuration.

Examples

The following example shows how to configure an NBNS server that is a master browser with an IP address of 10.10.10.19, a timeout value of 10 seconds, and 8 retries. It also shows how to configure an NBNS WINS server with an IP address of 10.10.10.24, a timeout value of 15 seconds, and 8 retries.

```
hostname(config)# webvpn
hostname(config-webvpn)# nbns-server 10.10.10.19 master timeout 10 retry 8
hostname(config-webvpn)# nbns-server 10.10.10.24 timeout 15 retry 8
```

neighbor

To define a static neighbor on a point-to-point, non-broadcast network, use the **neighbor** command in router configuration mode. To remove the statically defined neighbor from the configuration, use the **no** form of this command.

neighbor *ip_address* [**interface** *name*]

no neighbor *ip_address* [**interface** *name*]

Syntax Description

interface *name*	(Optional) Specifies the interface name, as specified by the **nameif** command, through which the neighbor can be reached.
ip_address	Specifies the IP address of the neighbor router.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

The **neighbor** command is used to advertise OSPF routes over VPN tunnels. One neighbor entry must be included for each known non-broadcast network neighbor. The neighbor address must be on the primary address of the interface.

The **interface** option needs to be specified when the neighbor is not on the same network as any of the directly connected interfaces of the system. Additionally, a static route must be created to reach the neighbor.

Examples

The following example defines a neighbor router with an address of 192.168.1.1:

```
hostname(config-router)# neighbor 192.168.1.1
```

Related Commands

Command	Description
router ospf	Enters router configuration mode.
show running-config router	Displays the commands in the global router configuration.

neighbor (EIGRP)

To define an EIGRP neighbor router with which to exchange routing information, use the **neighbor** command in router configuration mode. To remove a neighbor entry, use the **no** form of this command.

neighbor *ip_address* **interface** *name*

no neighbor *ip_address* **interface** *name*

Syntax Description

interface *name*	The interface name, as specified by the **nameif** command, through which the neighbor can be reached.
ip_address	IP address of the neighbor router.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Router configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

You can use multiple neighbor statements to establish peering sessions with specific EIGRP neighbors. The interface through which EIGRP exchanges routing updates must be specified in the neighbor statement. The interfaces through which two EIGRP neighbors exchange routing updates must be configured with IP addresses from the same network.

Note Configuring the **passive-interface** command for an interface suppresses all incoming and outgoing routing updates and hello messages on that interface. EIGRP neighbor adjacencies cannot be established or maintained over an interface that is configured as passive.

EIGRP hello messages are sent as unicast messages to neighbors defined using the **neighbor** command.

Examples

The following example configures EIGRP peering sessions with the 192.168.1.1 and 192.168.2.2 neighbors:

```
hostname(config)# router eigrp 100
hostname(config-router)# network 192.168.0.0
```

```
hostname(config-router)# neighbor 192.168.1.1 interface outside
hostname(config-router)# neighbor 192.168.2.2 interface branch_office
```

Related Commands

Command	Description
debug eigrp neighbors	Displays debug information for EIGRP neighbor messages.
show eigrp neighbors	Displays the EIGRP neighbor table.

nem

To enable network extension mode for hardware clients, use the **nem enable** command in group-policy configuration mode. To disable NEM, use the **nem disable** command. To remove the NEM attribute from the running configuration, use the **no** form of this command. This option allows inheritance of a value from another group policy.

nem {**enable** | **disable**}

no nem

Syntax Description

disable	Disables Network Extension Mode.
enable	Enables Network Extension Mode.

Defaults

Network extension mode is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policyconfiguration	•	—	•	—	—

Usage Guidelines

Network Extension mode lets hardware clients present a single, routable network to the remote private network over the VPN tunnel. IPsec encapsulates all traffic from the private network behind the hardware client to networks behind the ASA. PAT does not apply. Therefore, devices behind the ASA have direct access to devices on the private network behind the hardware client over the tunnel, and only over the tunnel, and vice versa. The hardware client must initiate the tunnel, but after the tunnel is up, either side can initiate data exchange.

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to set NEM for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# nem enable
```

network

To specify a list of networks for the RIP routing process, use the **network** command in router configuration mode. To remove a network definition, use the **no** form of this command.

network *ip_addr*

no network *ip_addr*

Syntax Description

ip_addr	The IP address of a directly connected network. The interface connected to the specified network will participate in the RIP routing process.

Defaults

No networks are specified.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

The network number specified must not contain any subnet information. There is no limit to the number of network commands you can use on the router. RIP routing updates will be sent and received only through interfaces on the specified networks. Also, if the network of an interface is not specified, the interface will not be advertised in any RIP update.

Examples

The following example defines RIP as the routing protocol to be used on all interfaces connected to networks 10.0.0.0 and 192.168.7.0:

```
hostname(config)# router rip
hostname(config-router)# network 10.0.0.0
hostname(config-router)# network 192.168.7.0
```

Related Commands

Command	Description
router rip	Enters router configuration mode.
show running-config router	Displays the commands in the global router configuration.

network (EIGRP)

To specify a list of networks for the EIGRP routing process, use the **network** command in router configuration mode. To remove a network definition, use the **no** form of this command.

network *ip_addr* [*mask*]

no network *ip_addr* [*mask*]

Syntax Description

ip_addr	The IP address of a directly connected network. The interface connected to the specified network will participate in the EIGRP routing process.
mask	(Optional) The network mask for the IP address.

Defaults

No networks are specified.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

The **network** command starts EIGRP on all interfaces with at least one IP address in the specified network. It inserts the connected subnet from the specified network in the EIGRP topology table.

The ASA then establishes neighbors through the matched interfaces. There is no limit to the number of **network** commands that can be configured on the ASA.

Examples

The following example defines EIGRP as the routing protocol to be used on all interfaces connected to networks 10.0.0.0 and 192.168.7.0:

```
hostname(config)# router eigrp 100
hostname(config-router)# network 10.0.0.0 255.0.0.0
hostname(config-router)# network 192.168.7.0 255.255.255.0
```

Related Commands

Command	Description
show eigrp interfaces	Displays information about interfaces configured for EIGRP.
show eigrp topology	Displays the EIGRP topology table.

network-acl

To specify a firewall ACL name that you configured previously using the **access-list** command, use the **network-acl** command in dynamic-access-policy-record configuration mode. To remove an existing network ACL, use the **no** form of this command. To remove all network ACL, use the command without arguments.

network-acl *name*

no network-acl [*name*]

Syntax Description

name	Specifies the name of the network ACL. Maximum 240 characters.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Dynamic-access-policy-record configuration	•	•	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Use this command multiple time to assign multiple firewall ACLs to the DAP record.

The ASA verifies each of the ACLs you specify to make sure they contain only permit rules or only deny rules for the access-list entries. If any of the specified ACLs contain mixed permit and deny rules, then the ASA rejects the command.

The following example shows how to apply a network ACL called Finance Restrictions to the DAP record named Finance.

```
hostname(config)# dynamic-access-policy-record Finance
hostname(config-dynamic-access-policy-record)# network-acl Finance Restrictions
hostname(config-dynamic-access-policy-record)#
```

Related Commands

Command	Description
access-policy	Configures a firewall access policy.

Command	Description
dynamic-access-policy-record	Creates a DAP record.
show running-config dynamic-access-policy-record [*name*]	Displays the running configuration for all DAP records, or for the named DAP record.

network area

To define the interfaces on which OSPF runs and to define the area ID for those interfaces, use the **network area** command in router configuration mode. To disable OSPF routing for interfaces defined with the address/netmask pair, use the **no** form of this command.

network *addr mask* **area** *area_id*

no network *addr mask* **area** *area_id*

Syntax Description

addr	IP address.
area *area_id*	Specifies the area that is to be associated with the OSPF address range. The *area_id* can be specified in either IP address format or in decimal format. When specified in decimal format, valid values range from 0 to 4294967295.
mask	The network mask.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

For OSPF to operate on the interface, the address of the interface must be covered by the **network area** command. If the **network area** command does not cover the IP address of the interface, it will not enable OSPF over that interface.

There is no limit to the number of **network area** commands you can use on the ASA.

Examples

The following example enables OSPF on the 192.168.1.1 interface and assigns it to area 2:

```
hostname(config-router)# network 192.168.1.1 255.255.255.0 area 2
```

Related Commands

Command	Description
router ospf	Enters router configuration mode.
show running-config router	Displays the commands in the global router configuration.

network-object

To add a host object, a network object, or a subnet object to a network object group, use the **network-object** command in object-group network configuration mode. To remove network objects, use the **no** form of this command.

network-object {host *ip_address* **|** *ip_address mask* **| object** *name*}

no network-object {host *ip_address* **|** *ip_address mask* **| object** *name*}

Syntax Description

host *ip_address*	Specifies a host IP address.
ip_address mask	Specifies the network address and subnet mask.
object *name*	Specifies a network object (**object network** command).

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Object-group network configuration	•	•	•	•	—

Command History

Release	Modification
8.3(1)	The **object** argument was added to support network objects (**object network** command).

Usage Guidelines

The **network-object** command is used with the **object-group** command to define a host object, a network object, or a subnet object.

Examples

The following example shows how to use the **network-object** command to create a new host object in a network object group:

```
hostname(config)# object-group network sjj_eng_ftp_servers
hostname(config-network-object-group)# network-object host sjj.eng.ftp
hostname(config-network-object-group)# network-object host 172.16.56.195
hostname(config-network-object-group)# network-object 192.168.1.0 255.255.255.224
hostname(config-network-object-group)# group-object sjc_eng_ftp_servers
hostname(config)#
```

Related Commands

Command	Description
clear configure object-group	Removes all the **object-group** commands from the configuration.
group-object	Adds network object groups.
object network	Adds a network object.
object-group network	Defines network object groups.
service-object	Adds a service object to a service object group.
show running-config object-group	Displays the current object groups.

nop

To define an action when the No Operation IP option occurs in a packet with IP Options inspection, use the **nop** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

nop action {allow | clear}

no nop action {allow | clear}

Syntax Description

allow	Instructs the ASA to allow a packet containing the No Operation IP option to pass.
clear	Instructs the ASA to clear the No Operation IP option from a packet and then allow the packet to pass.

Defaults

By default, IP Options inspection, drops packets containing the No Operation IP option.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
8.2(2)	This command was introduced.

Usage Guidelines

This command can be configured in an IP Options inspection policy map.

You can configure IP Options inspection to control which IP packets with specific IP options are allowed through the ASA. Configuring this inspection instructs the ASA to allow a packet to pass or to clear the specified IP options and then allow the packet to pass.

The Options field in the IP header can contain zero, one, or more options, which makes the total length of the field variable. However, the IP header must be a multiple of 32 bits. If the number of bits of all options is not a multiple of 32 bits, the No Operation (NOP) or IP Option 1 is used as “internal padding” to align the options on a 32-bit boundary.

Examples

The following example shows how to set up an action for IP Options inspection in a policy map:

```
hostname(config)# policy-map type inspect ip-options ip-options_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# eool action allow
hostname(config-pmap-p)# nop action allow
```

```
hostname(config-pmap-p)# router-alert action allow
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

nt-auth-domain-controller

To specify the name of the NT Primary Domain Controller for this server, use the **nt-auth-domain-controller** command in aaa-server host configuration mode. To remove this specification, use the **no** form of this command.

nt-auth-domain-controller *string*

no nt-auth-domain-controller

Syntax Description

string	Specifies the name, up to 16 characters long, of the Primary Domain Controller for this server.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Aaa-server host configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command is valid only for NT Authentication AAA servers. You must have first used the **aaa-server host** command to enter host configuration mode. The name in the *string* variable must match the NT entry on the server itself.

Examples

The following example configures the name of the NT Primary Domain Controller for this server as "primary1":

```
hostname(config)# aaa-server svrgrp1 protocol nt
hostname(configaaa-sesrver-group)# aaa-server svrgrp1 host 1.2.3.4
hostname(config-aaa-server-host)# nt-auth-domain-controller primary1
hostname(config-aaa-server-host)#
```

Related Commands

Command	Description
aaa server host	Enters aaa server host configuration mode so that you can configure AAA server parameters that are host-specific.

clear configure aaa-server	Remove all AAA command statements from the configuration.
show running-config aaa-server	Displays AAA server statistics for all AAA servers, for a particular server group, for a particular server within a particular group, or for a particular protocol.

ntp authenticate

To enable authentication with an NTP server, use the **ntp authenticate** command in global configuration mode. To disable NTP authentication, use the **no** form of this command.

ntp authenticate

no ntp authenticate

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

If you enable authentication, the ASA only communicates with an NTP server if it uses the correct trusted key in the packets (see the **ntp trusted-key** command). The ASA also uses an authentication key to synchronize with the NTP server (see the **ntp authentication-key** command).

Examples

The following example configures the ASA to synchronize only to systems that provide authentication key 42 in their NTP packets:

```
hostname(config)# ntp authenticate
hostname(config)# ntp authentication-key 42 md5 aNiceKey
hostname(config)# ntp trusted-key 42
```

Related Commands

Command	Description
ntp authentication-key	Sets an encrypted authentication key to synchronize with an NTP server.
ntp server	Identifies an NTP server.
ntp trusted-key	Provides a key ID for the ASA to use in packets for authentication with an NTP server.

Command	Description
show ntp associations	Shows the NTP servers with which the ASA is associated.
show ntp status	Shows the status of the NTP association.

ntp authentication-key

To set a key to authenticate with an NTP server, use the **ntp authentication-key** command in global configuration mode. To remove the key, use the **no** form of this command.

ntp authentication-key *key_id* **md5** *key*

no ntp authentication-key *key_id* [**md5** [0 | 8] *key*]

Syntax Description

0	(optional) Indicates <key_value> is plain text. Format is plain text if 0 or 8 is not present.
8	(optional) Indicates <key_value> is encrypted text. Format is plain text if 0 or 8 is not present.
key	Sets the key value as a string up to 32 characters in length.
key_id	Identifies a key ID between 1 and 4294967295. You must specify this ID as a trusted key using the **ntp trusted-key** command.
md5	Specifies the authentication algorithm as MD5, which is the only algorithm supported.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To use NTP authentication, also configure the **ntp authenticate** command.

Examples

The following example enables authentications, identifies trusted key IDs 1 and 2, and sets authentication keys for each trusted key ID:

```
hostname(config)# ntp authenticate
hostname(config)# ntp trusted-key 1
hostname(config)# ntp trusted-key 2
hostname(config)# ntp authentication-key 1 md5 aNiceKey
hostname(config)# ntp authentication-key 2 md5 aNiceKey2
```

Related Commands

Command	Description
ntp authenticate	Enables NTP authentication.
ntp server	Identifies an NTP server.
ntp trusted-key	Provides a key ID for the ASA to use in packets for authentication with an NTP server.
show ntp associations	Shows the NTP servers with which the ASA is associated.
show ntp status	Shows the status of the NTP association.

ntp server

To identify an NTP server to set the time on the ASA, use the **ntp server** command in global configuration mode. To remove the server, use the **no** form of this command.

ntp server *ip_address* [**key** *key_id*] [**source** *interface_name*] [**prefer**]

no ntp server *ip_address* [**key** *key_id*] [**source** *interface_name*] [**prefer**]

Syntax Description

ip_address	Sets the IP address or hostname of the NTP server.
key *key_id*	If you enable authentication using the **ntp authenticate** command, sets the trusted key ID for this server. See also the **ntp trusted-key** command.
source *interface_name*	Identifies the outgoing interface for NTP packets if you do not want to use the default interface in the routing table. Because the system does not include any interfaces in multiple context mode, specify an interface name defined in the admin context.
prefer	Sets this NTP server as the preferred server if multiple servers have similar accuracy. NTP uses an algorithm to determine which server is the most accurate and synchronizes to that one. If servers are of similar accuracy, then the **prefer** keyword specifies which of those servers to use. However, if a server is significantly more accurate than the preferred one, the ASA uses the more accurate one. For example, the ASA uses a server of stratum 2 over a server of stratum 3 that is preferred.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was modified to make the source interface optional.

Usage Guidelines

You can identify multiple servers; the ASA uses the most accurate server. In multiple context mode, set the NTP server in the system configuration only.

Examples

The following example identifies two NTP servers and enables authentication for the key IDs 1 and 2:

```
hostname(config)# ntp server 10.1.1.1 key 1 prefer
```

```
hostname(config)# ntp server 10.2.1.1 key 2
hostname(config)# ntp authenticate
hostname(config)# ntp trusted-key 1
hostname(config)# ntp trusted-key 2
hostname(config)# ntp authentication-key 1 md5 aNiceKey
hostname(config)# ntp authentication-key 2 md5 aNiceKey2
```

Related Commands

Command	Description
ntp authenticate	Enables NTP authentication.
ntp authentication-key	Sets an encrypted authentication key to synchronize with an NTP server.
ntp trusted-key	Provides a key ID for the ASA to use in packets for authentication with an NTP server.
show ntp associations	Shows the NTP servers with which the ASA is associated.
show ntp status	Shows the status of the NTP association.

ntp trusted-key

To specify an authentication key ID to be a trusted key, which is required for authentication with an NTP server, use the **ntp trusted-key** command in global configuration mode. To remove the trusted key, use the **no** form of this command. You can enter multiple trusted keys for use with multiple servers.

ntp trusted-key *key_id*

no ntp trusted-key *key_id*

Syntax Description

key_id	Sets a key ID between 1 and 4294967295.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To use NTP authentication, also configure the **ntp authenticate** command. To synchronize with a server, set the authentication key for the key ID using the **ntp authentication-key** command.

Examples

The following example enables authentications, identifies trusted key IDs 1 and 2, and sets authentication keys for each trusted key ID:

```
hostname(config)# ntp authenticate
hostname(config)# ntp trusted-key 1
hostname(config)# ntp trusted-key 2
hostname(config)# ntp authentication-key 1 md5 aNiceKey
hostname(config)# ntp authentication-key 2 md5 aNiceKey2
```

Related Commands

Command	Description
ntp authenticate	Enables NTP authentication.
ntp authentication-key	Sets an encrypted authentication key to synchronize with an NTP server.
ntp server	Identifies an NTP server.

Command	Description
show ntp associations	Shows the NTP servers with which the ASA is associated.
show ntp status	Shows the status of the NTP association.

num-packets

To specify the number of request packets sent during an SLA operation, use the **num-packets** command in sla monitor protocol configuration mode. To restore the default value, use the **no** form of this command.

num-packets *number*

no num-packets *number*

Syntax Description

number	The number of packets sent during an SLA operation. Valid values are from 1 to 100.

Defaults

The default number of packets sent for echo types is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
sla monitor protocol configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

Increase the default number of packets sent to prevent incorrect reachability information due to packet loss.

Examples

The following example configures an SLA operation with an ID of 123 that uses an ICMP echo request/response time probe operation. It sets the payload size of the echo request packets to 48 bytes and the number of echo requests sent during an SLA operation to 5.

```
hostname(config)# sla monitor 123
hostname(config-sla-monitor)# type echo protocol ipIcmpEcho 10.1.1.1 interface outside
hostname(config-sla-monitor-echo)# num-packets 5
hostname(config-sla-monitor-echo)# request-data-size 48
hostname(config-sla-monitor-echo)# timeout 4000
hostname(config-sla-monitor-echo)# threshold 2500
hostname(config-sla-monitor-echo)# frequency 10
hostname(config)# sla monitor schedule 123 life forever start-time now
hostname(config)# track 1 rtr 123 reachability
```

Related Commands

Command	Description
request-data-size	Specifies the size of the request packet payload.
sla monitor	Defines an SLA monitoring operation.
type echo	Configures the SLA operation as an echo response time probe operation.

CHAPTER 37

object network through override-svc-download Commands

object network

To configure a named network object, use the **object network** command in global configuration mode. Use the **no** form of this command to remove the object from the configuration.

object network *name* [**rename** *new_obj_name*]

no object network *name*

Syntax Description

name	Specifies the name of the network object. The name can be from 1 to 64 characters in length, consisting of letters, numbers, and the following special characters: underscore, hyphen, comma, forward slash, and period. Objects and object groups share the same name space.
rename *new_obj_name*	(Optional) Renames the object to the new object name.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.3(1)	This command was introduced.
8.4(2)	Support for FQDNs was introduced. See the **fqdn** command.

Usage Guidelines

The network object can contain a host, a network, a range IP addresses (IPv4 or IPv6), or an FQDN.

You can also enable NAT rules on this network object. You can only define a single NAT rule for a given object; if you want to configure multiple NAT rules, you need to create multiple objects that specify the same IP address, for example, **object network obj-10.10.10.1-01**, object network obj-10.10.10.1-02, and so on.

If you configure an existing network object with a different IP address, the new configuration will replace the existing configuration.

You cannot remove an object or make an object empty if it is used in a command.

Examples

The following example shows how to create a network object:

```
hostname (config)# object network OBJECT1
hostname (config-network-object)# host 10.1.1.1
```

Related Commands

Command	Description
clear configure object	Clears all objects created.
description	Adds a description to the network object.
fqdn	Specifies a fully-qualified domain name network object.
host	Specifies a host network object.
nat	Enables NAT for the network object.
object-group network	Creates a network object group.
range	Specifies a range of addresses for the network object.
show running-config object network	Shows the network object configuration.
subnet	Specifies a subnet network object.

object service

To configure a service object that is automatically reflected in all configurations in which the object is used, use the **object service** command in global configuration mode. Use the **no** form of this command to remove the object.

object service *name* [**rename** *new_obj_name*]

no object service *object name* [**rename** *new_obj_name*]

Syntax Description

name	Specifies the name of the existing service object. The name can be from 1 to 64 characters in length, consisting of letters, numbers, and the following special characters: underscore, hyphen, comma, and period. The object name must start with a letter.
rename *new_obj_name*	(Optional) Renames the object to the new object name.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.3(1)	This command was introduced.

Usage Guidelines

The service object can contain a protocol, ICMP, ICMPv6, TCP or UDP port or port ranges.

If you configure an existing service object with a different protocol and port (or ports), the new configuration replaces the existing protocol and port (or ports) with the new ones.

Examples

The following example shows how to create a service object:

```
hostname(config)# object service SERVOBJECT1
hostname(config-service-object)# service tcp source eq www destination eq ssh
```

Related Commands

Command	Description
clear configure object	Clears all objects created.
service	Configures the protocol and port for the service object.

object-group

To define object groups that you can use to optimize your configuration, use the **object-group** command in global configuration mode. Use the **no** form of this command to remove object groups from the configuration. This command supports IPv4 and IPv6 addresses.

object-group {**protocol** | **network** | **icmp-type** | **security** | **service** [**tcp** | **udp** | **tcp-udp**] | **user**} *grp_name*

Syntax Description

grp_name	Identifies the object group (one to 64 characters) and can be any combination of letters, digits, and the "_", "-", "." characters.
icmp-type	Defines a group of ICMP types such as echo and echo-reply. After entering the main **object-group icmp-type** command, add ICMP objects to the ICMP type group with the **icmp-object** and the **group-object** commands.
network	Defines a group of hosts or subnet IP addresses. After entering the main **object-group network** command, add network objects to the network group with the **network-object** and the **group-object** commands. You can create a group with a mix of IPv4 and IPv6 addresses. **Note** You cannot use a mixed object group for NAT.
protocol	Defines a group of protocols such as TCP and UDP. After entering the main **object-group protocol** command, add protocol objects to the protocol group with the **protocol-object** and the **group-object** commands.
security	Creates a security group object for use with Cisco TrustSec.
service	Defines a group of ports for a protocol (TCP, UDP, or TCP-UDP), or a group of services (a mix of protocols and ports). To define a group of ports, use the **tcp**, **udp**, or **tcp-udp** keywords. After entering the main **object-group service** *protocol* command, add port objects to the service group with the **port-object** and the **group-object** commands. To define a mixed group of services, do not specify the protocol type for the object-group. After entering the main **object-group service** command, add service objects to the service group with the **service-object** and the **group-object** commands.
tcp	(Optional) Specifies that the service group is used for TCP.
tcp-udp	(Optional) Specifies that the service group is used for ports in both TCP and UDP.
udp	(Optional) Specifies that the service group is used for UDP.
user	Defines object groups that you can use to control access with the Identity Firewall.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	We introduced this command.
8.4(2)	We added support for the **user** keyword to support Identity Firewall.
9.0(1)	You can now create network object groups that can support a mix of both IPv4 and IPv6 addresses. We added support for the **security** keyword to support Cisco TrustSec.

Usage Guidelines

Objects such as hosts, protocols, or services can be grouped, and then you can use the object group in features such as ACLs (**access-list**) and NAT (**nat**). This example shows the use of a network object group in an ACL:

```
hostname(config)# access-list access_list_name permit tcp any object-group NWgroup1
```

You can group commands hierarchically; an object group can be a member of another object group.

You cannot remove or empty an object group if it is currently being used in a command.

Examples

The following example shows how to use the **object-group icmp-type** mode to create a new icmp-type object group:

```
hostname(config)# object-group icmp-type icmp-allowed
hostname(config-icmp-object-group)# icmp-object echo
hostname(config-icmp-object-group)# icmp-object time-exceeded
hostname(config-icmp-object-group)# exit
```

The following example shows how to use the **object-group network** command to create a new network object group:

```
hostname(config)# object-group network sjc_eng_ftp_servers
hostname(config-network-object-group)# network-object host sjc.eng.ftp.servcers
hostname(config-network-object-group)# network-object host 172.23.56.194
hostname(config-network-object-group)# network-object 192.1.1.0 255.255.255.224
hostname(config-network-object-group)# exit
```

The following example shows how to use the **object-group network** command to create a new network object group and map it to an existing object-group:

```
hostname(config)# object-group network sjc_ftp_servers
hostname(config-network-object-group)# network-object host sjc.ftp.servers
hostname(config-network-object-group)# network-object host 172.23.56.195
hostname(config-network-object-group)# network-object 193.1.1.0 255.255.255.224
hostname(config-network-object-group)# group-object sjc_eng_ftp_servers
hostname(config-network-object-group)# exit
```

The following example shows how to use the **object-group protocol** mode to create a new protocol object group:

```
hostname(config)# object-group protocol proto_grp_1
hostname(config-protocol-object-group)# protocol-object udp
hostname(config-protocol-object-group)# protocol-object ipsec
hostname(config-protocol-object-group)# exit

hostname(config)# object-group protocol proto_grp_2
hostname(config-protocol-object-group)# protocol-object tcp
hostname(config-protocol-object-group)# group-object proto_grp_1
hostname(config-protocol-object-group)# exit
```

The following example shows how to use the **object-group service** mode to create a new port (service) object group:

```
hostname(config)# object-group service eng_service tcp
hostname(config-service-object-group)# group-object eng_www_service
hostname(config-service-object-group)# port-object eq ftp
hostname(config-service-object-group)# port-object range 2000 2005
hostname(config-service-object-group)# exit
```

The following example shows how to add and remove a text description to an object group:

```
hostname(config)# object-group protocol protos1
hostname(config-protocol-object-group)# description This group of protocols is for our
internal network

hostname(config-protocol-object-group)# show running-config object-group id protos1
object-group protocol protos1
description: This group of protocols is for our internal network

hostname(config-protocol-object-group)# no description
hostname(config-protocol-object-group)# show running-config object-group id protos1
object-group protocol protos1
```

The following example shows how to use the **group-object** mode to create a new object group that consists of previously defined objects:

```
hostname(config)# object-group network host_grp_1
hostname(config-network-object-group)# network-object host 192.168.1.1
hostname(config-network-object-group)# network-object host 192.168.1.2
hostname(config-network-object-group)# exit

hostname(config)# object-group network host_grp_2
hostname(config-network-object-group)# network-object host 172.23.56.1
hostname(config-network-object-group)# network-object host 172.23.56.2
hostname(config-network-object-group)# exit

hostname(config)# object-group network all_hosts
hostname(config-network-object-group)# group-object host_grp_1
hostname(config-network-object-group)# group-object host_grp_2
hostname(config-network-object-group)# exit

hostname(config)# access-list grp_1 permit tcp object-group host_grp_1 any eq ftp
hostname(config)#access-list grp_2 permit tcp object-group host_grp_2 any eq smtp
hostname(config)#access-list all permit tcp object-group all_hosts any eq www
```

Without the **group-object** command, you need to define the *all_hosts* group to include all the IP addresses that have already been defined in *host_grp_1* and *host_grp_2*. With the **group-object** command, the duplicated definitions of the hosts are eliminated.

The following examples show how to use object groups to simplify the access list configuration:

```
hostname(config)# object-group network remote
hostname(config-network-object-group)# network-object host kqk.suu.dri.ixx
hostname(config-network-object-group)# network-object host kqk.suu.pyl.gnl

hostname(config)# object-group network locals
hostname(config-network-object-group)# network-object host 209.165.200.225
hostname(config-network-object-group)# network-object host 209.165.200.230
hostname(config-network-object-group)# network-object host 209.165.200.235
hostname(config-network-object-group)# network-object host 209.165.200.240

hostname(config)# object-group service eng_svc tcp
hostname(config-service-object-group)# port-object eq www
hostname(config-service-object-group)# port-object eq smtp
hostname(config-service-object-group)# port-object range 25000 25100
```

This grouping enables the access list to be configured in 1 line instead of 24 lines, which would be needed if no grouping is used. Instead, with the grouping, the access list configuration is as follows:

```
hostname(config)# access-list acl permit tcp object-group remote object-group locals
object-group eng_svc
```

The following example shows how to use the **service-object** subcommand, which is useful for grouping TCP and UDP services:

```
hostname(config)# object-group network remote
hostname(config-network-object-group)# network-object host kqk.suu.dri.ixx
hostname(config-network-object-group)# network-object host kqk.suu.pyl.gnl

hostname(config)# object-group network locals
hostname(config-network-object-group)# network-object host 209.165.200.225
hostname(config-network-object-group)# network-object host 209.165.200.230
hostname(config-network-object-group)# network-object host 209.165.200.235
hostname(config-network-object-group)# network-object host 209.165.200.240

hostname(config)# object-group service usr_svc
hostname(config-service-object-group)# service-object tcp destination eq www
hostname(config-service-object-group)# service-object tcp destination eq https
hostname(config-service-object-group)# service-object tcp destination eq pop3
hostname(config-service-object-group)# service-object udp destination eq ntp
hostname(config-service-object-group)# service-object udp destination eq domain

hostname(config)# access-list acl permit object-group usr_svc object-group locals
object-group remote
```

Note The **show running-config object-group** and **write** commands allow you to display the access list as configured with the object group names. The **show access-list** command displays the access list entries that are expanded out into individual entries without their object groupings.

Related Commands

Command	Description
clear configure object-group	Removes all the **object group** commands from the configuration.
group-object	Adds network object groups.
network-object	Adds a network object to a network object group.

Command	Description
port-object	Adds a port object to a service object group.
show running-config object-group	Displays the current object groups.

object-group user

To create a user group object that support the Identity Firewall feature, use the **object-group user** command in global configuration mode. Use the **no** form of this command to disable the user group object.

object-group user *user_group_name*

[no] object-group user *user_group_name*

Syntax Description

user_group_name	Specifies the name for the user group. The group name can contain any character including [a-z], [A-Z], [0-9], [!@#$%^&()-_{}.]. If the group name contains a space, you must enclose the name in quotation marks.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.4(2)	This command was introduced.

Usage Guidelines

The ASA sends an LDAP query to the Active Directory server for user groups globally defined in the Active Directory domain controller. The ASA imports these groups for the Identity Firewall feature. However, the ASA might have localized network resources that are not defined globally that require local user groups with localized security policies. Local user groups can contain nested groups and user groups that are imported from Active Directory. The ASA consolidates local and Active Directory groups. A user can belong to local user groups and user groups imported from Active Directory.

The ASA supports up to 256 user groups (including imported user groups and local user groups).

You active user group objects by including them within an access group, capture, or service policy.

Within a user group object, you can define the following object types:

- **User**—Adds a single user to the object-group user.

  The user can be either a LOCAL user or imported user. The *user_name* argument that you specify with the **user** keyword contains an ASCII user name and does not specify an IP address.

The name of an imported user must be the sAMAccountName, which is unique, rather than the common name (cn), which might not be unique. However, some Active Directory server administrators might require that the sAMAccountName and the cn be identical. In this case, the cn that the ASA displays in the output of the **show user-identity ad-group-member** command can be used for imported users defined by the user object.

- **User-group**—Adds an imported user group, which is defined by an external directory server, such as Microsoft Active Directory server, to the group-object user.

  The group name of the user-group must be the sAMAccountName, which is unique, rather than the cn, which might not be unique. However, some Active Directory server administrators might require that the sAMAccountName and the cn be identical. In this case, the cn that the ASA displays in the output of the **show user-identity ad-group-member** command can be used in the *user_group_name* argument specified with the **user-group** keyword.

  Note You can add *domain_nickname**user_group_name* or *domain_nickname**user_ name* directly within a user group object without specifying them in the object first. If the *domain_nickname* is associated with a AAA server, the ASA imports the detailed nested user groups and the users defined in the external directory server, such as the Microsoft Active Directory server, to the ASA when the user object group is activated.

- **Group-object**—Adds a group defined locally on the ASA to the object-group user.

  Note When including an object-group within a object-group user object, the ASA does not expand the object-group in access groups even when you enable ACL optimization. The output of the **show object-group** command does not display the hit count, which is available only for regular network object-group when ACL optimization is enabled.

- **Description**—Adds a description for the object-group user.

Examples

The following example shows how to use the **object-group user** command to create user group objects for use with the Identity Firewall feature:

```
hostname(config)# object-group user sampleuser1-group
hostname(config-object-group user)# description group members of sampleuser1-group
hostname(config-object-group user)# user-group CSCO\\group.sampleusers-all
hostname(config-object-group user)# user CSCO\user2
hostname(config-object-group user)# exit
hostname(config)# object-group user sampleuser2-group
hostname(config-object-group user)# description group members of sampleuser2-group
hostname(config-object-group user)# group-object sampleuser1-group
hostname(config-object-group user)# user-group CSCO\\group.sampleusers-marketing
hostname(config-object-group user)# user CSCO\user3
```

Related Commands

Command	Description
description	Adds a description to the group created with the **object-group user** command.
group-object	Adds a locally defined object group to a user object group created with the **object-group user** command for use with the Identity Firewall feature.

Command	Description
user	Adds a user to the group created with the **object-group user** command.
user-group	Adds a user group imported from Microsoft Active Directory to the group created with the **object-group user** command.
user-identity enable	Creates the Cisco Identify Firewall instance.

object-group-search

To enable ACL optimization, use the **object-group-search** command in global configuration mode. Use the **no** form of this command to disable ACL optimization.

object-group-search access-control

no object-group-search access-control

Syntax Description

access-control	Searches for the access-control domain.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.3(1)	This command was introduced.

Usage Guidelines

The **object-group-search** command optimizes all ACLs in the inbound direction.

When the **object-group-search** command is enabled, all of the old NP rules are removed from the soft-NP and reinserted with object-group IDs. When the command is disabled, all of the old rules are removed from the soft-NP and reinserted by expanding the object groups.

When the **object-group-search access-control** command is enabled on an ASA, with a significant number of features enabled, a large number of active connections and loaded with a large ACL, there will be a connection drop during the operation and a performance drop while establishing new connections.

Examples

The following example shows how to use the **object-group-search** command to enable ACL optimization:

```
hostname(config)# object-group-search access-control
```

The following is sample output from the **show access-list** command when **object-group-search** is not enabled:

```
hostname# show access-list KH-BLK-Tunnel
access-list KH-BLK-Tunnel; 9 elements
```

```
access-list KH-BLK-Tunnel line 1 extended permit ip object-group KH-LAN object-group
BLK-LAN 0x724c956b
   access-list KH-BLK-Tunnel line 1 extended permit ip 192.168.97.0 255.255.255.0
192.168.4.0 255.255.255.0 (hitcnt=10) 0x30fe29a6
   access-list KH-BLK-Tunnel line 1 extended permit ip 13.13.13.0 255.255.255.0
192.168.4.0 255.255.255.0 (hitcnt=4) 0xc6ef2338
   access-list KH-BLK-Tunnel line 1 extended permit ip 192.168.97.0 255.255.255.0
14.14.14.0 255.255.255.0 (hitcnt=2) 0xce8596ec
   access-list KH-BLK-Tunnel line 1 extended permit ip 13.13.13.0 255.255.255.0 14.14.14.0
255.255.255.0 (hitcnt=0) 0x9a2f1c4d
access-list KH-BLK-Tunnel line 2 extended permit ospf interface pppoe1 host 87.139.87.200
(hitcnt=0) 0xb62d5832
access-list KH-BLK-Tunnel line 3 extended permit ip interface pppoe1 any (hitcnt=0)
0xa2c9ed34
access-list KH-BLK-Tunnel line 4 extended permit ip host 1.1.1.1 any (hitcnt=0) 0xd06f7e6b
access-list KH-BLK-Tunnel line 5 extended deny ip 1.1.0.0 255.255.0.0 any (hitcnt=0)
0x9d979934
access-list KH-BLK-Tunnel line 6 extended permit ip 1.1.1.0 255.255.255.0 any (hitcnt=0)
0xa52a0761
```

The following is sample output from the **show access-list** command when **object-group-search** is enabled:

```
hostname# show access-list KH-BLK-Tunnel
access-list KH-BLK-Tunnel; 6 elements
access-list KH-BLK-Tunnel line 1 extended permit ip object-group KH-LAN(1) object-group
BLK-LAN(2)(hitcount=16) 0x724c956b
access-list KH-BLK-Tunnel line 2 extended permit ospf interface pppoe1 host 87.139.87.200
(hitcnt=0) 0xb62d5832
access-list KH-BLK-Tunnel line 3 extended permit ip interface pppoe1 any (hitcnt=0)
0xa2c9ed34
access-list KH-BLK-Tunnel line 4 extended permit ip host 1.1.1.1 any (hitcnt=0) 0xd06f7e6b
access-list KH-BLK-Tunnel line 5 extended deny ip 1.1.0.0 255.255.0.0 any (hitcnt=0)
0x9d979934
access-list KH-BLK-Tunnel line 6 extended permit ip 1.1.1.0 255.255.255.0 any (hitcnt=0)
0xa52a0761
```

Related Commands

Command	Description
clear config object-group search	Clears the object-group-search configuration.
show object-group	Shows the hit count if the object group is of the network object-group type.
show running-config object-group	Displays the current object groups.
show running-config object-group-search	Show the object-group-search configuration in the running configuration.

ocsp disable-nonce

To disable the nonce extension, use the **ocsp disable-nonce** command in crypto ca trustpoint configuration mode. To re-enable the nonce extension, use the **no** form of this command.

ocsp disable-nonce

no ocsp disable-nonce

Syntax Description

This command has no arguments or keywords.

Defaults

By default, OCSP requests include a nonce extension.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Crypto ca trustpoint configuration	•	•	•	•	•

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

When you use this command, the OCSP request does not include the OCSP nonce extension, and the ASA does not check it. By default, OCSP requests include a nonce extension, which cryptographically binds requests with responses to avoid replay attacks. However, some OCSP servers use pre-generated responses that do not contain this matching nonce extension. To use OCSP with these servers, you must disable the nonce extension.

Examples

The following example shows how to disable the nonce extension for a trustpoint called newtrust.

```
hostname(config)# crypto ca trustpoint newtrust
hostname(config-ca-trustpoint)# ocsp disable-nonce
hostname(config-ca-trustpoint)#
```

Related Commands

Command	Description
crypto ca trustpoint	Enters crypto ca trustpoint configuration mode. Use this command in global configuration mode.
match certificate	Configures an OCSP override rule.

Command	Description
ocsp url	Specifies the OCSP server to use to check all certificates associated with a trustpoint.
revocation-check	Specifies the method(s) to use for revocation checking, and the order in which to try them.

ocsp url

To configure an OCSP server for the ASA to use to check all certificates associated with a trustpoint rather than the server specified in the AIA extension of the client certificate, use the **ocsp url** command in crypto ca trustpoint configuration mode. To remove the server from the configuration, use the **no** form of this command.

ocsp url *URL*

no ocsp url

Syntax Description

URL	Specifies the HTTP URL for the OCSP server.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Crypto ca trustpoint configuration	•	•	•	•	•

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

The ASA supports only HTTP URLs, and you can specify only one URL per trustpoint.

The ASA provides three ways to define an OCSP server URL, and it attempts to use OCSP servers according to how you define them, in the following order:

- An OCSP server you set using **match certificate** command.
- An OCSP server you set using the **ocsp url** command.
- The OCSP server in the AIA field of the client certificate.

If you do not configure an OCSP URL via the **match certificate** command or the **ocsp url** command, the ASA uses the OCSP server in the AIA extension of the client certificate. If the certificate does not have an AIA extension, revocation status checking fails.

Examples

The following example shows how to configure an OCSP server with the URL http://10.1.124.22.

```
hostname(config)# crypto ca trustpoint newtrust
hostname(config-ca-trustpoint)# ocsp url http://10.1.124.22
hostname(config-ca-trustpoint)#
```

Related Commands

Command	Description
crypto ca trustpoint	Enters crypto ca trustpoint configuration mode. Use this command in global configuration mode.
match certificate	Configures an OCSP override rule,
ocsp disable-nonce	Disables the nonce extension of the OCSP request.
revocation-check	Specifies the method(s) to use for revocation checking, and the order in which to try them.

onscreen-keyboard

To insert an onscreen keyboard into the logon pane or all panes with a login/password requirement, use the **onscreen-keyboard** command in webvpn mode. To remove a previously configured onscreen keyboard, use the **no** version of the command.

onscreen-keyboard {logon | all}

no onscreen-keyboard [logon | all]

Syntax Description

logon	Inserts the onscreen keyboard for the logon pane.
all	Inserts the onscreen keyboard for the logon pane, and for all other panes with a login/password requirement.

Defaults

No onscreen keyboard.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration mode	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

The onscreen keyboard lets you enter user credentials without keystrokes.

Examples

The following example shows how to enable the onscreen keyboard for the logon page:

```
hostname(config)# webvpn
hostname(config-webvpn)# onscreen-keyboard logon
hostname(config-webvpn)#
```

Related Commands

Command	Description
webvpn	Enters webvpn mode, which lets you configure attributes for clientless SSLVPN connections.

ospf authentication

To enable the use of OSPF authentication, use the **ospf authentication** command in interface configuration mode. To restore the default authentication stance, use the **no** form of this command.

ospf authentication [**message-digest** | **null**]

no ospf authentication

Syntax Description

message-digest	(Optional) Specifies to use OSPF message digest authentication.
null	(Optional) Specifies to not use OSPF authentication.

Defaults

By default, OSPF authentication is not enabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

Before using the **ospf authentication** command, configure a password for the interface using the **ospf authentication-key** command. If you use the **message-digest** keyword, configure the message-digest key for the interface with the **ospf message-digest-key** command.

For backward compatibility, authentication type for an area is still supported. If the authentication type is not specified for an interface, the authentication type for the area will be used (the area default is null authentication).

When this command is used without any options, simple password authentication is enabled.

Examples

The following example shows how to enable simple password authentication for OSPF on the selected interface:

```
hostname(config-if)# ospf authentication
hostname(config-if)#
```

Related Commands

Command	Description
ospf authentication-key	Specifies the password used by neighboring routing devices.
ospf message-digest-key	Enables MD5 authentication and specifies the MD5 key.

ospf authentication-key

To specify the password used by neighboring routing devices, use the **ospf authentication-key** command in interface configuration mode. To remove the password, use the **no** form of this command.

ospf authentication-key [**0** | **8**] *password*

no ospf authentication-key

Syntax Description<

0	Specifies an unencrypted password will follow
8	Specifies an encrypted password will follow.
password	Assigns an OSPF authentication password for use by neighboring routing devices. The password must be less than 9 characters. You can include blank space between two characters. Spaces at the beginning or end of the password are ignored.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

The password created by this command is used as a key that is inserted directly into the OSPF header when routing protocol packets are originated. A separate password can be assigned to each network on a per-interface basis. All neighboring routers on the same network must have the same password to be able to exchange OSPF information.

ExamplesNote

The following example shows how to specify a password for OSPF authentication:

```
hostname(config-if)# ospf authentication-key 8 yWIvi0qJAnGK5MRWQzrhIohkGP1wKb
```

Related Commands

Command	Description
area authentication	Enables OSPF authentication for the specified area.
ospf authentication	Enables the use of OSPF authentication.

ospf cost

To specify the cost of sending a packet through the interface, use the **ospf cost** command in interface configuration mode. To reset the interface cost to the default value, use the **no** form of this command.

ospf cost *interface_cost*

no ospf cost

Syntax Description

interface_cost	The cost (a link-state metric) of sending a packet through an interface. This is an unsigned integer value from 0 to 65535. 0 represents a network that is directly connected to the interface, and the higher the interface bandwidth, the lower the associated cost to send packets across that interface. In other words, a large cost value represents a low bandwidth interface and a small cost value represents a high bandwidth interface. The OSPF interface default cost on the ASA is 10. This default differs from Cisco IOS software, where the default cost is 1 for Fast Ethernet and Gigabit Ethernet and 10 for 10BaseT. This is important to take into account if you are using ECMP in your network.

Defaults

The default *interface_cost* is 10.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

The **ospf cost** command lets you explicitly specify the cost of sending a packet on an interface. The *interface_cost* parameter is an unsigned integer value from 0 to 65535.

The **no ospf cost** command allows you to reset the path cost to the default value.

Examples

The following example show how to specify the cost of sending a packet on the selected interface:

```
hostname(config-if)# ospf cost 4
```

Related Commands

Command	Description
show running-config interface	Displays the configuration of the specified interface.

ospf database-filter

To filter out all outgoing LSAs to an OSPF interface during synchronization and flooding, use the **ospf database-filter** command in interface configuration mode. To restore the LSAs, use the **no** form of this command.

ospf database-filter all out

no ospf database-filter all out

Syntax Description

all out	Filters all outgoing LSAs to an OSPF interface.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **ospf database-filter** command filters outgoing LSAs to an OSPF interface. The **no ospf database-filter all out** command restores the forwarding of LSAs to the interface.

Examples

The following example shows how to use the **ospf database-filter** command to filter outgoing LSAs:

```
hostname(config-if)# ospf database-filter all out
```

Related Commands

Command	Description
show interface	Displays interface status information.

ospf dead-interval

To specify the interval before neighbors declare a router down, use the **ospf dead-interval** command in interface configuration mode. To restore the default value, use the **no** form of this command.

ospf dead-interval *seconds*

no ospf dead-interval *seconds*

Syntax Description

seconds	The length of time during which no hello packets are seen. The default for *seconds* is four times the interval set by the **ospf hello-interval** command (which ranges from 1 to 65535).

Defaults

The default value for *seconds* is four times the interval set by the **ospf hello-interval** command.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

The **ospf dead-interval** command lets you set the dead interval before neighbors to declare the router down (the length of time during which no hello packets are seen). The *seconds* argument specifies the dead interval and must be the same for all nodes on the network. The default for *seconds* is four times the interval set by the **ospf hello-interval** command from 1 to 65535.

The **no ospf dead-interval** command restores the default interval value.

Examples

The following example sets the OSPF dead interval to 1 minute:

```
hostname(config-if)# ospf dead-interval 60
```

Related Commands

Command	Description
ospf hello-interval	Specifies the interval between hello packets sent on an interface.
show ospf interface	Displays OSPF-related interface information.

ospf hello-interval

To specify the interval between hello packets sent on an interface, use the **ospf hello-interval** command in interface configuration mode. To return the hello interval to the default value, use the **no** form of this command.

ospf hello-interval *seconds*

no ospf hello-interval

Syntax Description

seconds	Specifies the interval between hello packets that are sent on the interface; valid values are from 1 to 65535 seconds.

Defaults

The default value for **hello-interval** *seconds* is 10 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

This value is advertised in the hello packets. The smaller the hello interval, the faster topological changes will be detected, but more routing traffic will ensue. This value must be the same for all routers and access servers on a specific network.

Examples

The following example sets the OSPF hello interval to 5 seconds:

```
hostname(config-if)# ospf hello-interval 5
```

Related Commands

Command	Description
ospf dead-interval	Specifies the interval before neighbors declare a router down.
show ospf interface	Displays OSPF-related interface information.

ospf message-digest-key

To enable OSPF MD5 authentication, use the **ospf message-digest-key** command in interface configuration mode. To remove an MD5 key, use the **no** form of this command.

ospf message-digest-key *key-id* **md5** [**0** | **8**] *key*

no ospf message-digest-key

Syntax Description

key-id	Enables MD5 authentication and specifies the numerical authentication key ID number; valid values are from 1 to 255.
md5 *key*	Alphanumeric password of up to 16 bytes. You can include spaces between key characters. Spaces at the beginning or end of the key are ignored. MD5 authentication verifies the integrity of the communication, authenticates the origin, and checks for timeliness.
0	Specifies an unencrypted password will follow
8	Specifies an encrypted password will follow.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

The **ospf message-digest-key** command lets you enable MD5 authentication. The **no** form of the command let you remove an old MD5 key. *key_id* is a numerical identifier from 1 to 255 for the authentication key. *key* is an alphanumeric password of up to 16 bytes. MD5 verifies the integrity of the communication, authenticates the origin, and checks for timeliness.

Examples

The following example shows how to specify an MD5 key for OSPF authentication:

```
hostname(config-if)# ospf message-digest-key 3 md5 8 yWIvi0qJAnGK5MRWQzrhIohkGP1wKb
```

Related Commands

Command	Description
area authentication	Enables OSPF area authentication.
ospf authentication	Enables the use of OSPF authentication.

ospf mtu-ignore

To disable OSPF maximum transmission unit (MTU) mismatch detection on receiving database packets, use the **ospf mtu-ignore** command in interface configuration mode. To restore MTU mismatch detection, use the **no** form of this command.

ospf mtu-ignore

no ospf mtu-ignore

Syntax Description

This command has no arguments or keywords.

Defaults

By default, **ospf mtu-ignore** is enabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

OSPF checks whether neighbors are using the same MTU on a common interface. This check is performed when neighbors exchange Database Descriptor (DBD) packets. If the receiving MTU in the DBD packet is higher than the IP MTU configured on the incoming interface, OSPF adjacency will not be established.The **ospf mtu-ignore** command disables OSPF MTU mismatch detection on receiving DBD packets. It is enabled by default.

Examples

The following example shows how to disable the **ospf mtu-ignore** command:

```
hostname(config-if)# ospf mtu-ignore
```

Related Commands

Command	Description
show interface	Displays interface status information.

ospf network point-to-point non-broadcast

To configure the OSPF interface as a point-to-point, non-broadcast network, use the **ospf network point-to-point non-broadcast** command in interface configuration mode. To remove this command from the configuration, use the **no** form of this command.

ospf network point-to-point non-broadcast

no ospf network point-to-point non-broadcast

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

The **ospf network point-to-point non-broadcast** command lets you to transmit OSPF routes over VPN tunnels.

When the interface is specified as point-to-point, the OSPF neighbors have to be manually configured; dynamic discovery is not possible. To manually configure OSPF neighbors, use the **neighbor** command in router configuration mode.

When an interface is configured as point-to-point, the following restrictions apply:

- You can define only one neighbor for the interface.
- You need to define a static route pointing to the crypto endpoint.
- The interface cannot form adjacencies unless neighbors are configured explicitly.
- If OSPF over the tunnel is running on the interface, regular OSPF with an upstream router cannot be run on the same interface.
- You should bind the crypto-map to the interface before specifying the OSPF neighbor to ensure that the OSPF updates are passed through the VPN tunnel. If you bind the crypto-map to the interface after specifying the OSPF neighbor, use the **clear local-host all** command to clear OSPF connections so the OSPF adjacencies can be established over the VPN tunnel.

Examples

The following example shows how to configure the selected interface as a point-to-point, non-broadcast interface:

```
hostname(config-if)# ospf network point-to-point non-broadcast
hostname(config-if)#
```

Related Commands

Command	Description
neighbor	Specifies manually configured OSPF neighbors.
show interface	Displays interface status information.

ospf priority

To change the OSPF router priority, use the **ospf priority** command in interface configuration mode. To restore the default priority, use the **no** form of this command.

ospf priority *number*

no ospf priority [*number*]

Syntax Description

number	Specifies the priority of the router; valid values are from 0 to 255.

Defaults

The default value for *number* is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

When two routers attached to a network both attempt to become the designated router, the one with the higher router priority takes precedence. If there is a tie, the router with the higher router ID takes precedence. A router with a router priority set to zero is ineligible to become the designated router or backup designated router. Router priority is configured only for interfaces to multiaccess networks (in other words, not to point-to-point networks).

Examples

The following example shows how to change the OSPF priority on the selected interface:

```
hostname(config-if)# ospf priority 4
hostname(config-if)#
```

Related Commands

Command	Description
show ospf interface	Displays OSPF-related interface information.

ospf retransmit-interval

To specify the time between LSA retransmissions for adjacencies belonging to the interface, use the **ospf retransmit-interval** command in interface configuration mode. To restore the default value, use the **no** form of this command.

ospf retransmit-interval [*seconds*]

no ospf retransmit-interval [*seconds*]

Syntax Description

seconds	Specifies the time between LSA retransmissions for adjacent routers belonging to the interface; valid values are from 1 to 65535 seconds.

Defaults

The default value of **retransmit-interval** *seconds* is 5 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

When a router sends an LSA to its neighbor, it keeps the LSA until it receives the acknowledgment message. If the router receives no acknowledgment, it will re-send the LSA.

The setting of this parameter should be conservative, or needless retransmission will result. The value should be larger for serial lines and virtual links.

Examples

The following example shows how to change the retransmit interval for LSAs:

```
hostname(config-if)# ospf retransmit-interval 15
hostname(config-if)#
```

Related Commands

Command	Description
show ospf interface	Displays OSPF-related interface information.

ospf transmit-delay

To set the estimated time required to send a link-state update packet on the interface, use the **ospf transmit-delay** command in interface configuration mode. To restore the default value, use the **no** form of this command.

ospf transmit-delay [*seconds*]

no ospf transmit-delay [*seconds*]

Syntax Description

seconds	Sets the estimated time required to send a link-state update packet on the interface. The default value is 1 second with a range from 1 to 65535 seconds.

Defaults

The default value of *seconds* is 1 second.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

LSAs in the update packet must have their ages incremented by the amount specified in the *seconds* argument before transmission. The value assigned should take into account the transmission and propagation delays for the interface.

If the delay is not added before transmission over a link, the time in which the LSA propagates over the link is not considered. This setting has more significance on very low-speed links.

Examples

The following example sets the transmit delay to 3 seconds for the selected interface:

```
hostname(config-if)# ospf restransmit-delay 3
hostname(config-if)#
```

Related Commands

Command	Description
show ospf interface	Displays OSPF-related interface information.

otp expiration

To specify the duration in hours that an issued One-Time Password (OTP) for the local Certificate Authority (CA) enrollment page is valid, use the **otp expiration** command in ca server configuration mode. To reset the duration to the default number of hours, use the **no** form of this command.

otp expiration *timeout*

no otp expiration

Syntax Description

timeout	Specifies the time in hours users have to enroll for a certificate from the local CA before the OTP for the enrollment page expires. Valid values range from 1 to 720 hours (30 days).

Defaults

By default, a OTP expiration for certificate enrollment is 72 hours (3 days).

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ca server configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

The OTP expiration period specifies the number of hours that a user has to log in to the enrollment page of the CA server. After the user logs in and enrolls for a certificate, the time period specified by the **enrollment retrieval** command starts.

Note The user OTP for enrolling for a certificate with the enrollment interface page is also used as the password to unlock the PKCS12 file containing the issued certificate and keypair for that user.

Examples

The following example specifies that the OTP for the enrollment page applies for 24 hours:

```
hostname(config)# crypto ca server
hostname(config-ca-server)# otp expiration 24
hostname(config-ca-server)#
```

The following example resets the OTP duration to the default of 72 hours:

```
hostname(config)# crypto ca server
hostname(config-ca-server))# no otp expiration
hostname(config-ca-server)#
```

Related Commands

Command	Description
crypto ca server	Provides access to the ca server configuration mode command set, which allows you to configure and manage the local CA.
enrollment-retrieval	Specifies the time in hours that an enrolled user can retrieve a PKCS12 enrollment file.
show crypto ca server	Displays the certificate authority configuration.

outstanding

To limit the number of unauthenticated e-mail proxy sessions, use the **outstanding** command in the applicable e-mail proxy configuration mode. To remove the attribute from the configuration, use the **no** form of this command.

outstanding {*number*}

no outstanding

Syntax Description

number	The number of unauthenticated sessions permitted. The range is from 1 to 1000.

Defaults

The default is 20.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Pop3s	•	—	•	—	—
Imap4s	•	—	•	—	—
Smtps	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Use the **no** version of this command to remove the attribute from the configuration, which permits an unlimited number of unauthenticated sessions. This also limit s DOS attacks on the e-mail ports.

E-mail proxy connections have three states:

1. A new e-mail connection enters the “unauthenticated” state.
2. When the connection presents a username, it enters the “authenticating” state.
3. When the ASA authenticates the connection, it enters the “authenticated” state.

If the number of connections in the unauthenticated state exceeds the configured limit, the ASA terminates the oldest unauthenticated connection, preventing overload. It does not terminate authenticated connections.

Examples

The following example shows how to set a limit of 12 unauthenticated sessions for POP3S e-mail proxy.

```
hostname(config)# pop3s
hostname(config-pop3s)# outstanding 12
```

override-account-disable

To override an account-disabled indication from a AAA server, use the **override-account-disable** command in tunnel-group general-attributes configuration mode. To disable an override, use the **no** form of this command.

override-account-disable

no override-account-disable

Syntax Description

This command has no arguments or keywords.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tunnel-group general-attributes configuration	•	—	•	—	—

Command History

Release	Modification
7.1.1	This command was introduced.

Usage Guidelines

This command is valid for servers, such as RADIUS with NT LDAP, and Kerberos, that return an "account-disabled" indication.

You can configure this attribute for IPsec RA and WebVPN tunnel-groups.

Examples

The following example allows overriding the "account-disabled" indicator from the AAA server for the WebVPN tunnel group "testgroup":

```
hostname(config)# tunnel-group testgroup type webvpn
hostname(config)# tunnel-group testgroup general-attributes
hostname(config-tunnel-general)# override-account-disable
hostname(config-tunnel-general)#
```

The following example allows overriding the "account-disabled" indicator from the AAA server for the IPsec remote access tunnel group "QAgroup":

```
hostname(config)# tunnel-group QAgroup type ipsec-ra
hostname(config)# tunnel-group QAgroup general-attributes
hostname(config-tunnel-general)# override-account-disable
hostname(config-tunnel-general)#
```

Related Commands

Command	Description
clear configure tunnel-group	Clears the tunnel-group database or the configuration for a particular tunnel group.
tunnel-group general-attributes	Configures the tunnel-group general-attributes values.

override-svc-download

To configure the connection profile to override the group policy or username attributes configuration for downloading an AnyConnect or SSL VPN client, use the **override-svc-download** command from tunnel-group webvpn attributes configuration mode. To remove the command from the configuration, use the **no** form of the command:

override-svc-download enable

no override-svc-download enable

Defaults

The default is disabled. The ASA does not override the group policy or username attributes configuration for downloading the client.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tunnel-group webvpn configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

The security appliance allows clientless, AnyConnect, or SSL VPN client connections for remote users based on whether clientless and/or SSL VPN is enabled in the group policy or username attributes with the **vpn-tunnel-protocol** command. The **svc ask** command further modifies the client user experience by prompting the user to download the client or return to the WebVPN home page.

However, you may want clientless users logging in under specific tunnel groups to not experience delays waiting for the download prompt to expire before being presented with the clientless SSL VPN home page. You can prevent delays for these users at the connection profile level with the **override-svc-download** command. This command causes users logging through a connection profile to be immediately presented with the clientless SSL VPN home page regardless of the **vpn-tunnel-protocol** or **svc ask** command settings.

Examples

In the following example, the user enters tunnel-group webvpn attributes configuration mode for the connection profile *engineering* and enables the connection profile to override the group policy and username attribute settings for client download prompts:

```
hostname(config)# tunnel-group engineering webvpn-attributes
hostname(config-tunnel-webvpn)# override-svc-download
```

Related Commands

Command	Description
show webvpn svc	Displays information about installed SSL VPN clients.
svc	Enables or requires the SSL VPN client for a specific group or user.
svc image	Specifies a client package file that the ASA expands in cache memory for downloading to remote PCs.

CHAPTER 38

packet-tracer through ping Commands

packet-tracer

To enable packet tracing capabilities for troubleshooting by specifying the 5-tuple to test firewall rules, use the **packet-tracer** command in privileged EXEC mode.

packet-tracer input [**1-255**] [**A.B.C.D**] [*ifc_name*] [**icmp** [*sip* | **user** *username* | **security-group** [**name** *name* | **tag** *tag*] **fqdn** *fqdn-string*] *type code ident* [*dip* **security-group** [**name** *name* | **tag** *tag*] | **fqdn** *fqdn-string*]] | [**tcp** [*sip* | **user** *username* | **fqdn** *fqdn-string*] *sport* [*dip* | **fqdn** *fqdn-string*] *dport*] | [**udp** [*sip* | **user** *username* | **fqdn** *fqdn-string*] *sport* [*dip* | **fqdn** *fqdn-string*] *dport*] | [**rawip** [*sip* | **user** *username* | **fqdn** *fqdn-string*] [*dip* | **fqdn** *fqdn-string*]] [**detailed**] [**xml**]

Syntax Description

1-255	Specifies the IP protocol ID or next header range.
A.B.C.D	Specifies the IPv4 source address.
code	Specifies the ICMP code.
detailed	(Optional) Provides detailed trace results information.
dip	Specifies the destination IP address for the packet trace.
dport	Specifies the destination port for the packet trace.
fqdn *fqdn-string*	Specifies the fully qualified domain name of the host, which can be both the source and destination IP address. Supports the FQDN for IPv4 only.
icmp	Specifies the protocol to use is ICMP.
ident	Specifies the ICMP identifier.
input *ifc_name*	Specifies the name of the source interface on which to trace the packets.
name *name*	Specifies the security group name.
rawip	Specifies the protocol to use is raw IP.
security-group	Specifies the source and destination security groups.
sip	Specifies the source IP address for the packet trace.
sport	Specifies the source port for the packet trace.
tag *tag*	Specifies the security group tag.
tcp	Specifies the protocol to use is TCP.
type	Specifies the ICMP type.
udp	Specifies the protocol to use is UDP.
user *username*	Specifies the user identity in the format of [domain\user] if the user is identified as the source IP address. The domain can be a maximum of 32 characters. The user can be a maximum of 64 characters. Only the most recent logon IP address for a user is used for testing.
xml	(Optional) Displays the trace results in XML format.
X:X:X:X::X	Specifies the IPv6 source address.

Defaults

This command has no default settings.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC mode	•	—	•	•	•

Command History

Release	Modification
7.2(1)	This command was introduced.
8.4(2)	Added two keyword-argument pairs: **user** *username* and **fqdn** *fqdn string*. Renamed and redefined several keywords. Added support for IPv6 source addresses.
9.0(1)	Support for user identity was added. Only IPv4 fully qualified domain names (FQDNs) are supported.

Usage Guidelines

In addition to capturing packets, it is possible to trace the lifespan of a packet through the ASA to see if it is behaving as expected. The **packet-tracer** command enables you to do the following:

- Debug all packet drops in production network.
- Verify the configuration is working as intended.
- Show all rules applicable to a packet along with the CLI lines that caused the rule addition.
- Show a time line of packet changes in a data path.
- Inject tracer packets into the data path.
- Search for an IPv4 or IPv6 address based on the user identity and the FQDN.

The **packet-tracer** command provides detailed information about the packets and how they are processed by the ASA. If a command from the configuration did not cause the packet to drop, the **packet-tracer** command provides information about the cause in an easily readable format. For example if a packet was dropped because of an invalid header validation, the following message appears: “packet dropped due to bad ip header (reason).”

You can specify a user identity in the format of domain\user in the source part of this command. The ASA searches for the user's IP address and uses it in packet trace testing. If a user is mapped to multiple IP addresses, the most recent login IP address is used and the output shows that more IP address-user mapping exists. If user identity is specified in the source part of this command, then the ASA searches for the user's IPv4 or IPv6 address based on the destination address type that the user entered.

This command supports a FQDN, which means that you can also specify a FQDN as both the source and destination address. The ASA performs DNS lookup first, then retrieves the first returned IP address for packet construction. If multiple IP addresses are resolved, the output shows that more DNS resolved IP addresses exist. Only an IPv4 FQDN is supported.

Examples

To enable packet tracing from inside host 10.2.25.3 to external host 209.165.202.158 with detailed information, enter the following:

```
hostname# packet-tracer input inside tcp 10.2.25.3 www 209.165.202.158 aol detailed
```

The following example shows how to enable packet tracing from inside host 10.0.0.2 to outside host 20.0.0.2 with the username of CISCO\abc:

```
hostname# packet-tracer input inside icmp user CISCO\abc 0 0 1 20.0.0.2

Source: CISCO\abc 10.0.0.2

Phase: 1
Type: ROUTE-LOOKUP
Subtype: input
Result: ALLOW
Config:
Additional Information:
in 20.0.0. 255.255.255.0 outside
...
Result:
input-interface: inside
input-status: up
input-line-status: up
output-interfce: outside
output-status: up
output-line-status: up
Action: allow
```

The following example shows how to enable packet tracing from inside host 20.0.0.2 with the username of CISCO\abc and map this username to IP address 10.0.0.2:

```
hostname# packet-tracer input inside tcp user CISCO\abc 1000 20.0.0.2 23

Mapping user CISCO\abc to IP address 10.0.0.2
(More mappings exist. Please run "show user-identity ip-of-user <username>" to check.)

Phase: 1
Type: ROUTE-LOOKUP
Subtype: input
Result: ALLOW
Config:
Additional Information:
in 20.0.0. 255.255.255.0 outside
...
```

The following example shows how to enable packet tracing from inside host 20.0.0.2 with the username of CISCO\abc, map this username to IP address 10.0.0.2, and display the trace results in XML format:

```
<Source>
<user>CISCO\abc</user>
<user-ip>10.0.0.2</user-ip>
<more-ip>1</more-ip>
</Source>

<Phase>
<id>1</id>
<type>ROUTE-LOOKUP</type>
<subtype>input</subtype>
<result>ALLOW</result>
<config>
</config>
<extra>
in 20.0.0.0 255.255.255.0 outside
</extra>
</Phase>
```

The following example shows the error message that results from a packet trace from inside host 1000::123 in a search for the destination IPv6 address for the username of CISCO\abc:

```
hostname# packet-tracer input inside tcp user CISCO\abc 1000 1000::123
ERROR: No active IPv6 address found for user cisco.com\abc
```

The following example shows the results in XML format from a packet trace from inside host 1000::123 in a search for the destination IPv6 address for the username of CISCO\abc after this username has been mapped to an IPv6 address:

```
hostname# user-i s user CISCO\abc 2000::2
hostname# packet-tracer input inside tcp user CISCO\abc 1000 1000::123 xml

<Source>
<user>CISCO\abc</user>
<user-ip>2000::2</user-ip>
<more-ip>0</more-ip>
</Source>

<Result>
<input-interface>inside</input-interface>
<input-status>up</input-status>
```

The following example shows the error message that results from a packet trace from inside host 1000::123 when the username of CISCO\ancdef has not yet been created on the ASA:

```
hostname# packet-tracer input inside tcp user CISCO\ancdef 1000 1000::123
ERROR: User CISCO\ancdef does not exist
```

The following example shows how to enable a packet trace from inside host example.com to external host abc.idfw.com, in which the inside host has been identified as the FQDN of the source IP address, and the external host has been identified as the FQDN of the destination IP address:

```
hostname# packet-tracer input inside tcp fqdn xyz.example.com 1000 fqdn abc.example.com 23
Mapping FQDN xyz.example.com to IP address 10.0.0.2
(More IP addresses resolved. Please run "show dns-host" to check.)

Mapping FQDN abc.example.com to IP address 20.0.0.2
(More IP addresses resolved. Please run "show dns-host" to check.)

Phase: 1
Type: ROUTE-LOOKUP
Subtype: input
Result: ALLOW
Config:
Additional Information:
```

The following example shows how to enable a packet trace from inside host xyz.example.com to external host abc.example.com, in which the inside host has been identified as the FQDN of the source IP address and the external host has been identified as the FQDN of the destination IP address, and display the input in XML format:

```
hostname# packet-tracer input inside tcp fqdn xyz.example.com 1000 fqdn abc.example.com 23
xml
<Source>
<fqdn>xyz.example.com</user>
<fqdn-ip>10.0.0.2</fqdn-ip>
<more-ip>1</more-ip>
</Source>

<Destination>
<fqdn>abc.example.com</user>
<fqdn-ip>20.0.0.2</fqdn-ip>
<more-ip>1</more-ip>
</Destination>
```

```
Phase: 1
Type: ROUTE-LOOKUP
Subtype: input
Result: ALLOW
Config:
Additional Information:
```

The following example shows the error message that results from a packet trace in which the FQDN of the source IP address cannot be resolved:

```
hostname# packet-tracer input inside icmp fqdn ns10.example.com 0 0 2 20.0.0.2
ERROR: Cannot resolve ns10.example.com
```

Related Commands

Command	Description
capture	Captures packet information, including trace packets.
show capture	Displays the capture configuration when no options are specified.

page style

To customize the WebVPN page displayed to WebVPN users when they connect to the security appliance, use the **page style** command in webvpn customization configuration mode. To remove the command from the configuration and cause the value to be inherited, use the **no** form of this command.

page style *value*

[**no**] **page style** *value*

Syntax Description

value	Cascading Style Sheet (CSS) parameters (maximum 256 characters).

Defaults

The default page style is background-color:white;font-family:Arial,Helv,sans-serif

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn customization configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

The **style** option is expressed as any valid Cascading Style Sheet (CSS) parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium (W3C) website at www.w3.org. Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at www.w3.org/TR/CSS21/propidx.html.

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.
- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma separated entry indicates the level of intensity of each color to combine with the others.
- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.

Note To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

Examples

The following example customizes the page style to large:

```
F1-asa1(config)# webvpn
F1-asa1(config-webvpn)# customization cisco
F1-asa1(config-webvpn-custom)# page style font-size:large
```

Related Commands

Command	Description
logo	Customizes the logo on the WebVPN page.
title	Customizes the title of the WebVPN page

pager

To set the default number of lines on a page before the "---More---" prompt appears for Telnet sessions, use the **pager** command in global configuration mode.

pager [**lines**] *lines*

Syntax Description

[**lines**] *lines*	Sets the number of lines on a page before the "---More---" prompt appears. The default is 24 lines; 0 means no page limit. The range is 0 through 2147483647 lines. The **lines** keyword is optional and the command is the same with or without it.

Defaults

The default is 24 lines.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was changed from a privileged EXEC mode command to a global configuration mode command. The **terminal pager** command was added as the privileged EXEC mode command.

Usage Guidelines

This command changes the default pager line setting for Telnet sessions. If you want to temporarily change the setting only for the current session, use the **terminal pager** command.

If you Telnet to the admin context, then the pager line setting follows your session when you change to other contexts, even if the **pager** command in a given context has a different setting. To change the current pager setting, enter the **terminal pager** command with a new setting, or you can enter the **pager** command in the current context. In addition to saving a new pager setting to the context configuration, the **pager** command applies the new setting to the current Telnet session.

Examples

The following example changes the number of lines displayed to 20:

```
hostname(config)# pager 20
```

Related Commands

Command	Description
clear configure terminal	Clears the terminal display width setting.
show running-config terminal	Displays the current terminal settings.
terminal	Allows system log messsages to display on the Telnet session.
terminal pager	Sets the number of lines to display in a Telnet session before the "`---more---`" prompt. This command is not saved to the configuration.
terminal width	Sets the terminal display width in global configuration mode.

parameters

To enter parameters configuration mode to set parameters for an inspection policy map, use the **parameters** command in policy-map configuration mode.

parameters

Syntax Description

This command has no arguments or keywords.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Policy-map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

Modular Policy Framework lets you configure special actions for many application inspections. When you enable an inspection engine using the **inspect** command in the Layer 3/4 policy map (the **policy-map** command), you can also optionally enable actions as defined in an inspection policy map created by the **policy-map type inspect** command. For example, enter the **inspect dns dns_policy_map** command where dns_policy_map is the name of the inspection policy map.

An inspection policy map may support one or more **parameters** commands. Parameters affect the behavior of the inspection engine. The commands available in parameters configuration mode depend on the application.

Examples

The following example shows how to set the maximum message length for DNS packets in the default inspection policy map:

```
hostname(config)# policy-map type inspect dns preset_dns_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# message-length maximum 512
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

participate

To force the device to participate in the virtual load-balancing cluster, use the **participate** command in VPN load-balancing configuration mode. To remove a device from participation in the cluster, use the **no** form of this command.

participate

no participate

Syntax Description

This command has no arguments or keywords.

Defaults

The default behavior is that the device does not participate in the vpn load-balancing cluster.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
VPN load-balancing configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You must first configure the interface using the **interface** and **nameif** commands, and use the **vpn load-balancing** command to enter VPN load-balancing mode. You must also have previously configured the cluster IP address using the **cluster ip** command and configured the interface to which the virtual cluster IP address refers.

This command forces this device to participate in the virtual load-balancing cluster. You must explicitly issue this command to enable participation for a device.

All devices that participate in a cluster must share the same cluster-specific values: ip address, encryption settings, encryption key, and port.

Note When using encryption, you must have previously configured the command **isakmp enable** *inside*, where *inside* designates the load-balancing inside interface. If isakmp is not enabled on the load-balancing inside interface, you get an error message when you try to configure cluster encryption.

If isakmp was enabled when you configured the **cluster encryption** command, but was disabled before you configured the **participate** command, you get an error message when you enter the **participate** command, and the local device will not participate in the cluster.

Examples

The following is an example of a VPN load-balancing command sequence that includes a **participate** command that enables the current device to participate in the vpn load-balancing cluster:

```
hostname(config)# interface GigabitEthernet 0/1
hostname(config-if)# ip address 209.165.202.159 255.255.255.0
hostname(config)# nameif test
hostname(config)# interface GigabitEthernet 0/2
hostname(config-if)# ip address 209.165.201.30 255.255.255.0
hostname(config)# nameif foo
hostname(config)# vpn load-balancing
hostname(config-load-balancing)# interface lbpublic test
hostname(config-load-balancing)# interface lbprivate foo
hostname(config-load-balancing)# cluster ip address 209.165.202.224
hostname(config-load-balancing)# participate
```

Related Commandsh

Command	Description
vpn load-balancing	Enter VPN load-balancing mode.

passive-interface (RIP)

To disable the transmission of RIP routing updates on an interface, use the **passive-interface** command in router configuration mode. To reenable RIP routing updates on an interface, use the **no** form of this command.

passive-interface {**default** | *if_name*}

no passive-interface {**default** | *if_name*}

Syntax Description

default	(Optional) Set all interfaces to passive mode.
if_name	(Optional) Sets the specified interface to passive mode.

Defaults

All interfaces are enabled for active RIP when RIP is enabled.

If an interface or the **default** keyword is not specified, the commands defaults to **default** and appears in the configuration as passive-interface default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

Enables passive RIP on the interface. The interface listens for RIP routing broadcasts and uses that information to populate the routing tables, but does not broadcast routing updates.

Examples

The following example sets the outside interface to passive RIP. The other interfaces on the security appliance send and receive RIP updates.

```
hostname(config)# router rip
hostname(config-router)# network 10.0.0.0
hostname(config-router)# passive-interface outside
```

Related Commands

Command	Description
clear configure rip	Clears all RIP commands from the running configuration.
router rip	Enables the RIP routing process and enters rip router configuration mode.
show running-config rip	Displays the RIP commands in the running configuration.

passive-interface (EIGRP)

To disable the sending and receiving of EIGRP routing updates on an interface, use the **passive-interface** command in router configuration mode. To reenable routing updates on an interface, use the **no** form of this command.

passive-interface {**default** | *if_name*}

no passive-interface {**default** | *if_name*}

Syntax Description

default	(Optional) Set all interfaces to passive mode.
if_name	(Optional) The name of the interface, as specified by the **nameif** command, to passive mode.

Defaults

All interfaces are enabled for active routing (sending and receiving routing updates) when routing is enabled for that interface.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Router configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.
8.0(2)	Support for EIGRP routing was added.

Usage Guidelines

Enables passive routing on the interface. For EIGRP, this disables the transmission and reception of routing updates on that interface.

You can have more than one **passive-interface** command in the EIGRP configuration. You can use the **passive-interface default** command to disable EIGRP routing on all interfaces, and then use the **no passive-interface** command to enable EIGRP routing on specific interfaces.

Examples

The following example sets the outside interface to passive EIGRP. The other interfaces on the security appliance send and receive EIGRP updates.

```
hostname(config)# router eigrp 100
hostname(config-router)# network 10.0.0.0
hostname(config-router)# passive-interface outside
```

The following example sets all interfaces except the inside interface to passive EIGRP. Only the inside interface will send and receive EIGRP updates.

```
hostname(config)# router eigrp 100
hostname(config-router)# network 10.0.0.0
hostname(config-router)# passive-interface default
hostname(config-router)# no passive-interface inside
```

Related Commands

Command	Description
show running-config router	Displays the router configuration commands in the running configuration.

passive-interface (OSPFv3)

To suppress the sending and receiving of routing updates on an interface or across all interfaces that are using an OSPFv3 process, use the **passive-interface** command in router configuration mode. To reenable routing updates on an interface or across all intterfaces that are using an OSPFv3 process, use the **no** form of this command.

passive-interface [*interface_name*]

no passive-interface [*interface_name*]

Syntax Description

interface_name	(Optional) Specifies the interface name on which the OSPFv3 process is running.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

This command enables passive routing on an interface.

Examples

The following example suppresses the sending and receiving of routing updates on the inside interface.

```
hostname(config)# ipv6 router ospf 10
hostname(config-rtr)# passive-interface interface
hostname(config-rtr)#
```

Related Commands

Command	Description
show running-config router	Displays the router configuration commands in the running configuration.

passwd, password

To set the login password for Telnet, use the **passwd** or **password** command in global configuration mode. To reset the password, use the **no** form of this command.

{**passwd** | **password**} *password* [**encrypted**]

no {**passwd** | **password**} *password*

Syntax Description

encrypted	(Optional) Specifies that the password is in encrypted form. The password is saved in the configuration in encrypted form, so you cannot view the original password after you enter it. If for some reason you need to copy the password to another ASA but do not know the original password, you can enter the **passwd** command with the encrypted password and this keyword. Normally, you only see this keyword when you enter the **show running-config passwd** command.
passwd | **password**	You can enter either command; they are aliased to each other.
password	Sets the password as a case-sensitive string of up to 80 characters. The password must not contains spaces.

Defaults

9.1(1): The default password is “cisco.”

9.1(2): No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.4(2)	The SSH default username is no longer supported; you can no longer connect to the ASA using SSH with the **pix** or **asa** username and the login password.
9.0(2), 9.1(2)	The default password, “cisco,” has been removed; you must actively set a login password. Using the **no passwd** or **clear configure passwd** command removes the password; formerly, it reset it to the default of “cisco.”

Usage Guidelines

When you enable Telnet with the **telnet** command, you can log in with the password set by the **passwd** comamnd. After you enter the login password, you are in user EXEC mode. If you configure CLI authentication per user for Telnet using the **aaa authentication telnet console** command, then this password is not used.

This password is also used for Telnet sessions from the switch to the ASASM (see the **session** command).

Examples

The following example sets the password to Pa$$w0rd:

```
hostname(config)# passwd Pa$$w0rd
```

The following example sets the password to an encrypted password that you copied from another ASA:

```
hostname(config)# passwd jMorNbK0514fadBh encrypted
```

Related Commands

Command	Description
clear configure passwd	Clears the login password.
enable	Enters privileged EXEC mode.
enable password	Sets the enable password.
show curpriv	Shows the currently logged in username and the user privilege level.
show running-config passwd	Shows the login password in encrypted form.

password encryption aes

To enable password encryption , use the password encryption aes command in global configuration mode. To disable password encryption, use the **no** form of this command.

password encryption aes

no password encryption aes

Syntax Description

This command has no arguments or keywords.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
8.3(1)	This command was introduced.

Usage Guidelines

As soon as password encryption is turned on and master pass phrase is available all the user passwords will be encrypted. The running configuration will show the passwords in the encrypted format. If the pass phrase is not configured at the time of enabling password encryption the command will succeed in anticipation that the pass phrase will be available in future. This command will be automatically synchronized between the failover peers.

The **write erase** command when followed by the **reload** command will remove the master passphrase if it is lost.

Examples

The following example enables password encryption:

```
Router (config)# password encryption aes
```

Related Commands

Command	Description
key config-key password-encryption	Sets the passphrase used for generating the encryption key.
write erase	Removes the master passphrase if it is lost when followed by the **reload** command.

password (crypto ca trustpoint)

To specify a challenge phrase that is registered with the CA during enrollment, use the **password** command in crypto ca trustpoint configuration mode. To restore the default setting, use the **no** form of this command.

password *string*

no password

Syntax Description

string	Specifies the name of the password as a character string. The first character cannot be a number. The string can contain any alphanumeric characters, including spaces, up to 80 characters. You cannot specify the password in the format number-space-anything. The space after the number causes problems. For example, "hello 21" is a legal password, but "21 hello" is not. The password checking is case sensitive. For example, the password "Secret" is different from the password "secret".

Defaults

The default setting is to not include a password.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Crypto ca trustpoint configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command lets you specify the revocation password for the certificate before actual certificate enrollment begins. The specified password is encrypted when the updated configuration is written to NVRAM by the ASA.

The CA typically uses a challenge phrase to authenticate a subsequent revocation request.

If this command is enabled, you will not be prompted for a password during certificate enrollment.

Examples

The following example enters crypto ca trustpoint configuration mode for trustpoint central, and includes a challenge phrase registered with the CA in the enrollment request for trustpoint central:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# password zzxxyy
```

Related Commands

Command	Description
crypto ca trustpoint	Enters trustpoint configuration mode.
default enrollment	Returns enrollment parameters to their defaults.

password-management

To enable password management, use the **password-management** command in tunnel-group general-attributes configuration mode. To disable password management, use the **no** form of this command. To reset the number of days to the default value, use the **no** form of the command with the **password-expire-in-days** keyword specified.

password-management [**password-expire-in-days** *days*]

no password-management

no password-management password-expire-in-days [*days*]

Syntax Description

days	Specifies the number of days (0 through 180) before the current password expires. This parameter is required if you specify the **password-expire-in-days** keyword.
password-expire-in-days	(Optional) Indicates that the immediately following parameter specifies the number of days before the current password expires that the ASA starts warning the user about the pending expiration. This option is valid only for LDAP servers. See the Usage Notes section for more information.

Defaults

The default is no password management. If you do not specify the **password-expire-in-days** keyword for an LDAP server, the default length of time to start warning before the current password expires is 14 days.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tunnel-group general-attributes configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

The ASA supports password management for the RADIUS and LDAP protocols. It supports the "password-expire-in-days" option for LDAP only.

You can configure password management for IPsec remote access and SSL VPN tunnel-groups.

When you configure the password-management command, the ASA notifies the remote user at login that the user's current password is about to expire or has expired. The ASA then offers the user the opportunity to change the password. If the current password has not yet expired, the user can still log in using that password.

This command is valid for AAA servers that support such notification; that is, natively to LDAP servers and RADIUS proxied to an NT 4.0 or Active Directory server. The ASA ignores this command if RADIUS or LDAP authentication has not been configured.

Note Some RADIUS servers that support MSCHAP currently do not support MSCHAPv2. This command requires MSCHAPv2 so please check with your vendor.

The ASA, releases 7.1 and later, generally supports password management for the following connection types when authenticating with LDAP or with any RADIUS configuration that supports MS-CHAPv2:

- AnyConnect VPN Client (ASA software version 8.0 and higher)
- IPsec VPN Client
- Clientless SSL VPN (ASA software version 8.0 and higher)WebVPN (ASA software versions 7.1 through 7.2.x)
- SSL VPN Client full tunneling client

These RADIUS configurations include RADIUS with LOCAL authentication, RADIUS with Active Directory/Kerberos Windows DC, RADIUS with NT/4.0 Domain, and RADIUS with LDAP.

Password management is *not* supported for any of these connection types for Kerberos/Active Directory (Windows password) or NT 4.0 Domain. The RADIUS server (for example, Cisco ACS) could proxy the authentication request to another authentication server. However, from the ASA perspective, it is talking only to a RADIUS server.

Note For LDAP, the method to change a password is proprietary for the different LDAP servers on the market. Currently, the ASA implements the proprietary password management logic only for Microsoft Active Directory and Sun LDAP servers.

Native LDAP requires an SSL connection. You must enable LDAP over SSL before attempting to do password management for LDAP. By default, LDAP uses port 636.

Note that this command does not change the number of days before the password expires, but rather, the number of days ahead of expiration that the ASA starts warning the user that the password is about to expire.

If you do specify the **password-expire-in-days** keyword, you must also specify the number of days.

Specifying this command with the number of days set to 0 disables this command. The ASA does not notify the user of the pending expiration, but the user can change the password after it expires.

Note Radius does not provide a password change, or provide a password change prompt.

Examples

The following example sets the days before password expiration to begin warning the user of the pending expiration to 90 for the WebVPN tunnel group "testgroup":

```
hostname(config)# tunnel-group testgroup type webvpn
hostname(config)# tunnel-group testgroup general-attributes
hostname(config-tunnel-general)# password-management password-expire-in-days 90
hostname(config-tunnel-general)#
```

The following example uses the default value of 14 days before password expiration to begin warning the user of the pending expiration for the IPsec remote access tunnel group “QAgroup”:

```
hostname(config)# tunnel-group QAgroup type ipsec-ra
hostname(config)# tunnel-group QAgroup general-attributes
hostname(config-tunnel-general)# password-management
hostname(config-tunnel-general)#
```

Related Commands

Command	Description
clear configure passwd	Clears the login password.
passwd	Sets the login password.
radius-with-expiry	Enables negotiation of password update during RADIUS authentication (Deprecated).
show running-config passwd	Shows the login password in encrypted form.
tunnel-group general-attributes	Configures the tunnel-group general-attributes values.

password-parameter

To specify the name of the HTTP POST request parameter in which a user password must be submitted for SSO authentication, use the **password-parameter** command in aaa-server-host configuration mode. This is an SSO with the HTTP Forms command.

password-parameter *string*

Note To configure SSO with HTTP correctly, you must have a thorough working knowledge of authentication and HTTP exchanges.

Syntax Description

string	The name of the password parameter included in the HTTP POST request. The maximum password length is 128 characters.

Defaults

No default value or behavior.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Aaa-server-host configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

The WebVPN server of the ASA uses an HTTP POST request to submit a single sign-on authentication request to an authenticating web server. The required command **password-parameter** specifies that the POST request must include a user password parameter for SSO authentication.

Note At login, the user enters the actual password value, which is entered into the POST request and passed on to the authenticating web server.

Examples

The following example, entered in aaa-server-host configuration mode, specifies a password parameter named user_password:

```
hostname(config)# aaa-server testgrp1 host example.com
hostname(config-aaa-server-host)# password-parameter user_password
```

Related Commands

Command	Description
action-uri	Specifies a web server URI to receive a username and password for single sign-on authentication.
auth-cookie-name	Specifies a name for the authentication cookie.
hidden-parameter	Creates hidden parameters for exchange with the authenticating web server.
start-url	Specifies the URL at which to retrieve a pre-login cookie.
user-parameter	Specifies the name of the HTTP POST request parameter in which a username must be submitted for SSO authentication.

password-policy authenticate enable

To determine whether users are allowed to modify their own user account, use the **password-policy authenticate enable** command in global configuration mode. To set the corresponding password policy attribute to its default value, use the **no** form of this command.

password-policy authenticate enable

no password-policy authenticate enable

Syntax Description

This command has no arguments or keywords.

Defaults

Authentication is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
9.1(2)	This command was introduced.

Usage Guidelines

If authentication is enabled, the **username** command does not allow users to change their own password or delete their own account. In addition, the **clear configure username** command does not allow users to delete their own account.

Examples

The following example shows how to enable users to modify their user account:

```
hostname(config)# password-policy authenticate enable
```

Related Commands

Command	Description
password-policy minimum-changes	Sets the minimum number of characters that must be changed between new and old passwords.
password-policy minimum length	Sets the minimum length of passwords.
password-policy minimum-lowercase	Sets the minimum number of lower case characters that passwords may have.

password-policy lifetime

To set password policy for the current context and the interval in days after which passwords expire, use the **password-policy lifetime** command in global configuration mode. To set the corresponding password policy attribute to its default value, use the **no** form of this command.

password-policy lifetime *value*

no password-policy lifetime *value*

Syntax Description

value	Specifies the password lifetime. Valid values range from 0 to 65535 days.

Defaults

The default lifetime value is 0 days.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
9.1(2)	This command was introduced.

Usage Guidelines

Passwords have a specified maximum lifetime. A lifetime interval of 0 days specifies that local user passwords never expire. Note that passwords expire at 12:00 a.m. of the day following lifetime expiration.

Examples

The following example specifies a password lifetime value of 10 days:

```
hostname(config)# password-policy lifetime 10
```

Related Commands

Command	Description
password-policy minimum-changes	Sets the minimum number of characters that must be changed between new and old passwords.
password-policy minimum length	Sets the minimum length of passwords.
password-policy minimum-lowercase	Sets the minimum number of lower case characters that passwords may have.

password-policy minimum-changes

To set the minimum number of characters that must be changed between new and old passwords, use the **password-policy minimum-changes** command in global configuration mode. To set the corresponding password policy attribute to its default value, use the **no** form of this command.

password-policy minimum-changes *value*

no password-policy minimum-changes *value*

Syntax Description

value	Specifies the number of characters that must be changed between new and old passwords. Valid values range from 0 to 64 characters.

Defaults

The default number of changed characters is 0.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
9.1(2)	This command was introduced.

Usage Guidelines

New passwords must include a minimum of 4 character changes from the current password and are considered changed only if they do not appear anywhere in the current password.

Examples

The following example specifies a minimum number of character changes between old and new passwords of 6 characters:

```
hostname(config)# password-policy minimum-changes 6
```

Related Commands

Command	Description
password-policy lifetime	Sets the password lifetime in days after which passwords expire.
password-policy minimum-length	Sets the minimum length of passwords.
password-policy minimum-lowercase	Sets the minimum number of lowercase characters that passwords may have.

password-policy minimum-length

To set the minimum length of passwords, use the **password-policy minimum-length** command in global configuration mode. To set the corresponding password policy attribute to its default value, use the **no** form of this command.

password-policy minimum-length *value*

no password-policy minimum-length *value*

Syntax Description

value	Specifies the minimum length for passwords. Valid values range from 0 to 64 characters.

Defaults

The default minimum length is 0.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
9.1(2)	This command was introduced.

Usage Guidelines

If the minimum length is less than any of the other minimum attributes (changes, lower case, upper case, numeric, and special), an error message appears and the minimum length is not changed. The recommended password length is 8 charcters.

Examples

The following example specifies a minimum number of characters for passwords as 8:

```
hostname(config)# password-policy minimum-length 8
```

Related Commands

Command	Description
password-policy lifetime	Sets the password lifetime value in days after which passwords expire.
password-policy minimum-changes	Sets the minimum number of changed characters allowed between old and new passwords.
password-policy minimum-lowercase	Sets the minimum number of lower case characters that passwords may have.

password-policy minimum-lowercase

To set the minimum number of lower case characters that passwords may have, use the **password-policy minimum-lowercase** command in global configuration mode. To set the corresponding password policy attribute to its default value, use the **no** form of this command.

password-policy minimum-lowercase *value*

no password-policy minimum-lowercase *value*

Syntax Description

value	Specifies the minimum number of lower case characters for passwords. Valid values range from 0 to 64 characters.

Defaults

The default number of minimum lower case characters is 0, which means there is no minimum.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
9.1(2)	This command was introduced.

Usage Guidelines

This command sets the minimum number of lower case characters that passwords may have. Valid values range from 0 to 64 characters.

Examples

The following example specifies the minimum number of lower case characters that passwords may have as 6:

```
hostname(config)# password-policy minimum-lowercase 6
```

Related Commands

Command	Description
password-policy lifetime	Sets the password lifetime value in days after which passwords expire.
password-policy minimum-changes	Sets the minimum number of characters that must be changed between new and old passwords.
password-policy minimum-length	Sets the minimum length of passwords.

password-policy minimum-numeric

To set the minimum number of numeric characters that passwords may have, use the **password-policy minimum-numeric** command in global configuration mode. To set the corresponding password policy attribute to its default value, use the **no** form of this command.

password-policy minimum-numeric *value*

no password-policy minimum-numeric *value*

Syntax Description

value	Specifies the minimum number of numeric characters for passwords. Valid values range from 0 to 64 characters.

Defaults

The default number of minimum numeric characters is 0, which means there is no minimum.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
9.1(2)	This command was introduced.

Usage Guidelines

This command sets the minimum number of numeric characters that passwords may have. Valid values range from 0 to 64 characters.

Examples

The following example specifies the minimum number of numeric characters that passwords may have as 8:

```
hostname(config)# password-policy minimum-numeric 8
```

Related Commands

Command	Description
password-policy lifetime	Sets the password lifetime value in days after which passwords expire.
password-policy minimum-changes	Sets the minimum number of characters that must be changed between new and old passwords.
password-policy minimum-length	Sets the minimum length of passwords.

password-policy minimum-special

To set the minimum number of special characters that passwords may have, use the **password-policy minimum-special** command in global configuration mode. To set the corresponding password policy attribute to its default value, use the **no** form of this command.

password-policy minimum-special *value*

no password-policy minimum-special *value*

Syntax Description

value	Specifies the minimum numer of special characters for passwords. Valid values range from 0 to 64 characters.

Defaults

The default number of minimum special characters is 0, which means there is no minimum.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
9.1(2)	This command was introduced.

Usage Guidelines

This command sets the minimum number of special characters that passwords may have. Special characters include the following: !, @, #, $, %, ^, &, *, '(‘ and ‘)’.

Examples

The following example specifies the minimum number of special characters that passwords may have as 2:

```
hostname(config)# password-policy minimum-special 2
```

Related Commands

Command	Description
password-policy lifetime	Sets the password lifetime value in days after which passwords expire.
password-policy minimum-changes	Sets the minimum number of characters that must be changed between new and old passwords.
password-policy minimum-length	Sets the minimum length of passwords.

password-policy minimum-uppercase

To set the minimum number of upper case characters that passwords may have, use the **password-policy minimum-uppercase** command in global configuration mode. To set the corresponding password policy attribute to its default value, use the **no** form of this command.

password-policy minimum-uppercase *value*

no password-policy minimum-uppercase *value*

Syntax Description

value	Specifies the minimum number of upper case characters for passwords. Valid values range from 0 to 64 characters.

Defaults

The default number of minimum upper case characters is 0, which means there is no minimum.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
9.1(2)	This command was introduced.

Usage Guidelines

This command sets the minimum number of upper case characters that passwords may have. Valid values range from 0 to 64 characters.

Examples

The following example specifies the minimum number of upper case characters that passwords may have as 4:

```
hostname(config)# password-policy minimum-uppercase 4
```

Related Commands

Command	Description
password-policy lifetime	Sets the password lifetime value in days after which passwords expire.
password-policy minimum-changes	Sets the minimum number of characters that must be changed between new and old passwords.
password-policy minimum-length	Sets the minimum length of passwords.

password-prompt

To customize the password prompt of the WebVPN page login box that is displayed to WebVPN users when they connect to the security appliance, use the **password-prompt** command from webvpn customization mode:

password-prompt {**text** | **style**} *value*

[**no**] **password-prompt** {**text** | **style**} *value*

To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command.

Syntax Description

text	Specifies you are changing the text.
style	Specifies you are changing the style.
value	The actual text to display (maximum 256 characters), or Cascading Style Sheet (CSS) parameters (maximum 256 characters).

Defaults

The default text of the password prompt is "PASSWORD:".

The default style of the password prompt is color:black;font-weight:bold;text-align:right.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Webvpn customization	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

The **style** option is expressed as any valid Cascading Style Sheet (CSS) parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium (W3C) website at www.w3.org. Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at www.w3.org/TR/CSS21/propidx.html.

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.
- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma separated entry indicates the level of intensity of each color to combine with the others.

- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.

Note To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

Examples

In the following example, the text is changed to "Corporate Password:", and the default style is changed with the font weight increased to bolder:

```
hostname(config)# webvpn
hostname(config-webvpn)# customization cisco
hostname(config-webvpn-custom)# password-prompt text Corporate Username:
hostname(config-webvpn-custom)# password-prompt style font-weight:bolder
```

Related Commands

Command	Description
group-prompt	Customizes the group prompt of the WebVPN page
username-prompt	Customizes the username prompt of the WebVPN page

password-storage

To let users store their login passwords on the client system, use the **password-storage enable** command in group-policy configuration mode or username configuration mode. To disable password storage, use the **password-storage disable** command.

To remove the password-storage attribute from the running configuration, use the **no** form of this command. This enables inheritance of a value for password-storage from another group policy.

password-storage {enable | disable}

no password-storage

Syntax Description

disable	Disables password storage.
enable	Enables password storage.

Defaults

Password storage is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Group-policy configuration	•	—	•	—	—
Username configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Enable password storage only on systems that you know to be in secure sites.

This command has no bearing on interactive hardware client authentication or individual user authentication for hardware clients.

Examples

The following example shows how to enable password storage for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# password-storage enable
```

peer-id-validate

To specify whether to validate the identity of the peer using the peer's certificate, use the **peer-id-validate** command in tunnel-group ipsec-attributes mode. To return to the default value, use the **no** form of this command.

peer-id-validate *option*

no peer-id-validate

Syntax Description

option	Specifies one of the following options: • **req**: required • **cert**: if supported by certificate • **nocheck**: do not check

Defaults

The default setting for this command is **req**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tunnel-group ipsec attributes	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You can apply this attribute to all IPsec tunnel-group types.

Examples

The following example entered in config-ipsec configuration mode, requires validating the peer using the identity of the peer's certificate for the IPsec LAN-to-LAN tunnel group named 209.165.200.225:

```
hostname(config)# tunnel-group 209.165.200.225 type IPsec_L2L
hostname(config)# tunnel-group 209.165.200.225 ipsec-attributes
hostname(config-tunnel-ipsec)# peer-id-validate req
hostname(config-tunnel-ipsec)#
```

Related Commands

Command	Description
clear-configure tunnel-group	Clears all configured tunnel groups.
show running-config tunnel-group	Shows the tunnel group configuration for all tunnel groups or for a particular tunnel group.
tunnel-group ipsec-attributes	Configures the tunnel-group ipsec-attributes for this group.

perfmon

To display performance information, use the **perfmon** command in privileged EXEC mode.

perfmon {**verbose** | **interval** *seconds* | **quiet** | **settings**} [*detail*]

Syntax Description

verbose	Displays performance monitor information at the ASA console.
interval *seconds*	Specifies the number of seconds before the performance display is refreshed on the console.
quiet	Disables the performance monitor displays.
settings	Displays the interval and whether it is quiet or verbose.
detail	Displays detailed information about performance.

Defaults

The *seconds* is 120 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	

Command History

Release	Modification
7.0	Support for this command was introduced on the ASA.
7.2(1)	Support for the **detail** keyword was added.

Usage Guidelines

The **perfmon** command allows you to monitor the performance of the ASA. Use the **show perfmon** command to display the information immediately. Use the **perfmon verbose** command to display the information every 2 minutes continuously. Use the **perfmon interval** *seconds* command with the **perfmon verbose** command to display the information continuously every number of seconds that you specify.

An example of the performance information is displayed as follows:

PERFMON STATS:	Current	Average
Xlates	33/s	20/s
Connections	110/s	10/s
TCP Conns	50/s	42/s
WebSns Req	4/s	2/s
TCP Fixup	20/s	15/s
HTTP Fixup	5/s	5/s

FTP Fixup	7/s	4/s
AAA Authen	10/s	5/s
AAA Author	9/s	5/s
AAA Account	3/s	3/s

This information lists the number of translations, connections, Websense requests, address translations (called “fixups”), and AAA transactions that occur each second.

Examples

This example shows how to display the performance monitor statistics every 30 seconds on the ASA console:

```
hostname(config)# perfmon interval 120
hostname(config)# perfmon quiet
hostname(config)# perfmon settings
interval: 120 (seconds)
quiet
```

Related Commands

Command	Description
show perfmon	Displays performance information.

periodic

To specify a recurring (weekly) time range for functions that support the time-range feature, use the **periodic** command in time-range configuration mode. To disable, use the **no** form of this command.

periodic *days-of-the-week time* **to** [*days-of-the-week*] *time*

no periodic *days-of-the-week time* **to** [*days-of-the-week*] *time*

Syntax Description

days-of-the-week	(Optional) The first occurrence of this argument is the starting day or day of the week that the associated time range is in effect. The second occurrence is the ending day or day of the week the associated statement is in effect. This argument is any single day or combinations of days: Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, and Sunday. Other possible values are: • daily—Monday through Sunday • weekdays—Monday through Friday • weekend—Saturday and Sunday If the ending days of the week are the same as the starting days of the week, you can omit them.
time	Specifies the time in the format HH:MM. For example, 8:00 is 8:00 a.m. and 20:00 is 8:00 p.m.
to	Entry of the **to** keyword is required to complete the range "from start-time to end-time."

Defaults

If a value is not entered with the **periodic** command, access to the ASA as defined with the **time-range** command is in effect immediately and always on.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Time-range configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To implement a time-based ACL, use the **time-range** command to define specific times of the day and week. Then use the with the **access-list extended time-range** command to bind the time range to an ACL.

The **periodic** command is one way to specify when a time range is in effect. Another way is to specify an absolute time period with the **absolute** command. Use either of these commands after the **time-range** global configuration command, which specifies the name of the time range. Multiple **periodic** entries are allowed per **time-range** command.

If the end days-of-the-week value is the same as the start value, you can omit them.

If a **time-range** command has both **absolute** and **periodic** values specified, then the **periodic** commands are evaluated only after the **absolute start** time is reached, and are not further evaluated after the **absolute end** time is reached.

The time-range feature relies on the system clock of the ASA; however, the feature works best with NTP synchronization.

Examples

Some examples follow:

If you want:	Enter this:
Monday through Friday, 8:00 a.m. to 6:00 p.m. only	**periodic weekdays 8:00 to 18:00**
Every day of the week, from 8:00 a.m. to 6:00 p.m. only	**periodic daily 8:00 to 18:00**
Every minute from Monday 8:00 a.m. to Friday 8:00 p.m.	**periodic monday 8:00 to friday 20:00**
All weekend, from Saturday morning through Sunday night	**periodic weekend 00:00 to 23:59**
Saturdays and Sundays, from noon to midnight	**periodic weekend 12:00 to 23:59**

The following example shows how to allow access to the ASA on Monday through Friday, 8:00 a.m. to 6:00 p.m. only:

```
hostname(config-time-range)# periodic weekdays 8:00 to 18:00
hostname(config-time-range)#
```

The following example shows how to allow access to the ASA on specific days (Monday, Tuesday, and Friday), 10:30 a.m. to 12:30 p.m.:

```
hostname(config-time-range)# periodic Monday Tuesday Friday 10:30 to 12:30
hostname(config-time-range)#
```

Related Commands

Command	Description
absolute	Defines an absolute time when a time range is in effect.
access-list extended	Configures a policy for permitting or denying IP traffic through the ASA.
default	Restores default settings for the **time-range** command **absolute** and **periodic** keywords.
time-range	Defines access control to the ASA based on time.

permit errors

To allow invalid GTP packets or packets that otherwise would fail parsing and be dropped, use the **permit errors** command in GTP map configuration mode, which is accessed by using the **gtp-map** command. To return to the default behavior, where all invalid packets or packets that failed, during parsing, are dropped. use the **no** form of this command.

permit errors

no permit errors

Syntax Description

This command has no arguments or keywords.

Defaults

By default, all invalid packets or packets that failed, during parsing, are dropped.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
GTP map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Use the **permit errors** command in GTP map configuration mode to allow any packets that are invalid or encountered an error during inspection of the message to be sent through the ASA instead of being dropped.

Examples

The following example permits traffic containing invalid packets or packets that failed, during parsing:

```
hostname(config)# gtp-map qtp-policy
hostname(config-gtpmap)# permit errors
```

Related Commands

Commands	Description
clear service-policy inspect gtp	Clears global GTP statistics.
gtp-map	Defines a GTP map and enables GTP map configuration mode.
inspect gtp	Applies a specific GTP map to use for application inspection.

Commands	Description
permit response	Supports load-balancing GSNs.
show service-policy inspect gtp	Displays the GTP configuration.

permit response

To support load-balancing GSNs, use the **permit response** command in GTP map configuration mode, which is accessed by using the **gtp-map** command. Use the **no** form of this command to allow the ASA to drop GTP responses from GSNs other than the host to which the request was sent.

permit response to-object-group *to_obj_group_id* **from-object-group** *from_obj_group_id*

no permit response to-object-group *to_obj_group_id* **from-object-group** *from_obj_group_id*

Syntax Description

from-object-group *from_obj_group_id*	Specifies the name of the object-group configured with the **object-group** command which can send responses to the set of GSNs in the object-group specified by the *to_obj_group_id* argument. The ASA supports only object-groups containing network-objects with IPv4 addresses. IPv6 addresses are currently not supported with GTP.
to-object-group *to_obj_group_id*	Specifies the name of the object-group configured with the **object-group** command which can receive responses from the set of GSNs in the object-group specified by the *from_obj_group_id* argument. The ASA supports only object-groups containing network-objects with IPv4 addresses. IPv6 addresses are currently not supported with GTP.

Defaults

By default, the ASA drops GTP responses from GSNs other than the host to which the request was sent.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
GTP map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(4)	This command was introduced.

Usage Guidelines

Use the **permit response** command in GTP map configuration mode to support load-balancing GSNs. The **permit response** command configures the GTP map to allow GTP responses from a different GSN than the response was sent to.

You identify the pool of load-balancing GSNs as a network object. Likewise, you identify the SGSN as a network object. If the GSN responding belongs to the same object group as the GSN that the GTP request was sent to and if the SGSN is in a object group that the responding GSN is permitted to send a GTP response to, the ASA permits the response.

Examples

The following example permits GTP responses from any host on the 192.168.32.0 network to the host with the IP address 192.168.112.57:

```
hostname(config)# object-group network gsnpool32
hostname(config-network)# network-object 192.168.32.0 255.255.255.0
hostname(config)# object-group network sgsn1
hostname(config-network)# network-object host 192.168.112.57
hostname(config-network)# exit
hostname(config)# gtp-map qtp-policy
hostname(config-gtpmap)# permit response to-object-group sgsn1 from-object-group gsnpool32
```

Related Commands

Commands	Description
clear service-policy inspect gtp	Clears global GTP statistics.
gtp-map	Defines a GTP map and enables GTP map configuration mode.
inspect gtp	Applies a specific GTP map to use for application inspection.
permit errors	Allow invalid GTP packets.
show service-policy inspect gtp	Displays the GTP configuration.

pfs

To enable PFS, use the **pfs enable** command in group-policy configuration mode. To disable PFS, use the **pfs disable** command. To remove the PFS attribute from the running configuration, use the **no** form of this command.

pfs {enable | disable}

no pfs

Syntax Description

disable	Disables PFS.
enable	Enables PFS.

Defaults

PFS is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Group-policy configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The PFS setting on the VPN Client and the ASA must match.

Use the **no** form of this command to allow the inheritance of a value for PFS from another group policy.

In IPsec negotiations, PFS ensures that each new cryptographic key is unrelated to any previous key.

Examples

The following example shows how to set PFS for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# pfs enable
```

phone-proxy

To configure the Phone Proxy instance, use the **phone-proxy** command in global configuration mode.

To remove the Phone Proxy instance, use the **no** form of this command.

phone-proxy *phone_proxy_name*

no phone-proxy *phone_proxy_name*

Syntax Description

phone_proxy_name	Specifies the name of the Phone Proxy instance.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
8.0(4)	The command was introduced.

Usage Guidelines

Only one Phone Proxy instance can be configured on the ASA.

If NAT is configured for the HTTP proxy server, the global or mapped IP address of the HTTP proxy server with respect to the IP phones is written to the Phone Proxy configuration file.

Examples

The following example shows the use of the **phone-proxy** command to configure the Phone Proxy instance:

```
hostname(config)# phone-proxy asa_phone_proxy
hostname(config-phone-proxy)# tftp-server address 128.106.254.8 interface outside
hostname(config-phone-proxy)# media-termination address 192.0.2.25 interface inside
hostname(config-phone-proxy)# media-termination address 128.106.254.3 interface outside
hostname(config-phone-proxy)# tls-proxy asa_tlsp
hostname(config-phone-proxy)# ctl-file asactl
hostname(config-phone-proxy)# cluster-mode nonsecure
hostname(config-phone-proxy)# timeout secure-phones 00:05:00
hostname(config-phone-proxy)# disable service-settings
```

Related Commands

Command	Description
ctl-file (global)	Specifies the CTL file to create for Phone Proxy configuration or the CTL file to parse from Flash memory.
ctl-file (phone-proxy)	Specifies the CTL file to use for Phone Proxy configuration.
tls-proxy	Configures the TLS proxy instance.

pim

To re-enable PIM on an interface, use the **pim** command in interface configuration mode. To disable PIM, use the **no** form of this command.

pim

no pim

Syntax Description

This command has no arguments or keywords.

Defaults

The **multicast-routing** command enables PIM on all interfaces by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **multicast-routing** command enables PIM on all interfaces by default. Only the **no** form of the **pim** command is saved in the configuration.

Note PIM is not supported with PAT. The PIM protocol does not use ports and PAT only works with protocols that use ports.

Examples

The following example disables PIM on the selected interface:

```
hostname(config-if)# no pim
```

Related Commands

Command	Description
multicast-routing	Enables multicast routing on the ASA.

pim accept-register

To configure the ASA to filter PIM register messages, use the **pim accept-register** command in global configuration mode. To remove the filtering, use the **no** form of this command.

pim accept-register {**list** *acl* | **route-map** *map-name*}

no pim accept-register

Syntax Description

list *acl*	Specifies an access list name or number. Use only extended host ACLs with this command.
route-map *map-name*	Specifies a route-map name. Use extended host ACLs in the referenced route-map.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command is used to prevent unauthorized sources from registering with the RP. If an unauthorized source sends a register message to the RP, the ASA will immediately send back a register-stop message.

Examples

The following example restricts PIM register messages to those from sources defined in the access list named “no-ssm-range”:

```
hostname(config)# pim accept-register list no-ssm-range
```

Related Commands

Command	Description
multicast-routing	Enables multicast routing on the ASA.

pim bidir-neighbor-filter

To control which bidir-capable neighbors can participate in the DF election, use the **pim bidir-neighbor-filter** command in interface configuration mode. To remove the filtering, use the **no** form of this command.

pim bidir-neighbor-filter *acl*

no pim bidir-neighbor-filter *acl*

Syntax Description

acl	Specifies an access list name or number. The access list defines the neighbors that can participate in bidir DF elections. Use only standard ACLs with this command; extended ACLs are not supported.

Defaults

All routers are considered to be bidir capable.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

Bidirectional PIM allows multicast routers to keep reduced state information. All of the multicast routers in a segment must be bidirectionally enabled for bidir to elect a DF.

The **pim bidir-neighbor-filter** command enables the transition from a sparse-mode-only network to a bidir network by letting you specify the routers that should participate in DF election while still allowing all routers to participate in the sparse-mode domain. The bidir-enabled routers can elect a DF from among themselves, even when there are non-bidir routers on the segment. Multicast boundaries on the non-bidir routers prevent PIM messages and data from the bidir groups from leaking in or out of the bidir subset cloud.

When the **pim bidir-neighbor-filter** command is enabled, the routers that are permitted by the ACL are considered to be bidir-capable. Therefore:

- If a permitted neighbor does not support bidir, the DF election does not occur.
- If a denied neighbor supports bidir, then DF election does not occur.
- If a denied neighbor does not support bidir, the DF election can occur.

Examples

The following example allows 10.1.1.1 to become a PIM bidir neighbor:

```
hostname(config)# access-list bidir_test permit 10.1.1.1 255.255.255.55
hostname(config)# access-list bidir_test deny any
hostname(config)# interface GigabitEthernet0/3
hostname(config-if)# pim bidir-neighbor-filter bidir_test
```

Related Commands

Command	Description
multicast boundary	Defines a multicast boundary for administratively-scoped multicast addresses.
multicast-routing	Enables multicast routing on the ASA.

pim dr-priority

To configure the neighbor priority on the ASA used for designated router election, use the **pim dr-priority** command in interface configuration mode. To restore the default priority, use the **no** form of this command.

pim dr-priority *number*

no pim dr-priority

Syntax Description

number	A number from 0 to 4294967294. This number is used to determine the priority of the device when determining the designated router. Specifying 0 prevents the ASA from becoming the designated router.

Defaults

The default value is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The device with the largest priority value on an interface becomes the PIM designated router. If multiple devices have the same designated router priority, then the device with the highest IP address becomes the DR. If a device does not include the DR-Priority Option in hello messages, it is regarded as the highest-priority device and becomes the designated router. If multiple devices do not include this option in their hello messages, then the device with the highest IP address becomes the designated router.

Examples

The following example sets the DR priority for the interface to 5:

```
hostname(config-if)# pim dr-priority 5
```

Related Commands

Command	Description
multicast-routing	Enables multicast routing on the ASA.

pim hello-interval

To configure the frequency of the PIM hello messages, use the **pim hello-interval** command in interface configuration mode. To restore the hello-interval to the default value, use the **no** form of this command.

pim hello-interval *seconds*

no pim hello-interval [*seconds*]

Syntax Description

seconds	The number of seconds that the ASA waits before sending a hello message. Valid values range from 1 to 3600 seconds. The default value is 30 seconds.

Defaults

The interval default is 30 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example sets the PIM hello interval to 1 minute:

```
hostname(config-if)# pim hello-interval 60
```

Related Commands

Command	Description
multicast-routing	Enables multicast routing on the ASA.

pim join-prune-interval

To configure the PIM join/prune interval, use the **pim join-prune-interval** command in interface configuration mode. To restore the interval to the default value, use the **no** form of this command.

pim join-prune-interval *seconds*

no pim join-prune-interval [*seconds*]

Syntax Description

seconds	The number of seconds that the ASA waits before sending a join/prune message. Valid values range from 10 to 600 seconds. 60 seconds is the default.

Defaults

The default interval is 60 seconds

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example sets the PIM join/prune interval to 2 minutes:

```
hostname(config-if)# pim join-prune-interval 120
```

Related Commands

Command	Description
multicast-routing	Enables multicast routing on the ASA.

pim neighbor-filter

To control which neighbor routers can participate in PIM, use the **pim neighbor-filter** command in interface configuration mode. To remove the filtering, use the **no** form of this command.

pim neighbor-filter *acl*

no pim neighbor-filter *acl*

Syntax Description

acl	Specifies an access list name or number. Use only standard ACLs with this command; extended ACLs are not supported.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command defines which neighbor routers can participate in PIM. If this command is not present in the configuration then there are no restrictions.

Multicast routing and PIM must be enabled for this command to appear in the configuration. If you disable multicast routing, this command is removed from the configuration.

Examples

The following example allows the router with the IP address 10.1.1.1 to become a PIM neighbor on interface GigabitEthernet0/2:

```
hostname(config)# access-list pim_filter permit 10.1.1.1 255.255.255.55
hostname(config)# access-list pim_filter deny any
hostname(config)# interface gigabitEthernet0/2
hostname(config-if)# pim neighbor-filter pim_filter
```

Related Commands

Command	Description
multicast-routing	Enables multicast routing on the ASA.

pim old-register-checksum

To allow backward compatibility on a rendezvous point (RP) that uses old register checksum methodology, use the **pim old-register-checksum** command in global configuration mode. To generate PIM RFC-compliant registers, use the **no** form of this command.

pim old-register-checksum

no pim old-register-checksum

Syntax Description

This command has no arguments or keywords.

Defaults

The ASA generates PIM RFC-compliant registers.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The ASA software accepts register messages with checksum on the PIM header and only the next 4 bytes rather than using the Cisco IOS method—accepting register messages with the entire PIM message for all PIM message types. The **pim old-register-checksum** command generates registers compatible with Cisco IOS software.

Examples

The following example configures the ASA to use the old checksum calculations:

```
hostname(config)# pim old-register-checksum
```

Related Commands

Command	Description
multicast-routing	Enables multicast routing on the ASA.

pim rp-address

To configure the address of a PIM rendezvous point (RP), use the **pim rp-address** command in global configuration mode. To remove an RP address, use the **no** form of this command.

pim rp-address *ip_address* [*acl*] [**bidir**]

no pim rp-address *ip_address*

Syntax Description

acl	(Optional) The name or number of a standard access list that defines which multicast groups the RP should be used with. Do not use a host ACL with this command.
bidir	(Optional) Indicates that the specified multicast groups are to operate in bidirectional mode. If the command is configured without this option, the specified groups operate in PIM sparse mode.
ip_address	IP address of a router to be a PIM RP. This is a unicast IP address in four-part dotted-decimal notation.

Defaults

No PIM RP addresses are configured.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

All routers within a common PIM sparse mode (PIM-SM) or bidir domain require knowledge of the well-known PIM RP address. The address is statically configured using this command.

Note The ASA does not support Auto-RP; you must use the **pim rp-address** command to specify the RP address.

You can configure a single RP to serve more than one group. The group range specified in the access list determines the PIM RP group mapping. If the an access list is not specified, the RP for the group is applied to the entire IP multicast group range (224.0.0.0/4).

Note The ASA always advertises the bidir capability in the PIM hello messages regardless of the actual bidir configuration.

Examples

The following example sets the PIM RP address to 10.0.0.1 for all multicast groups:

```
hostname(config)# pim rp-address 10.0.0.1
```

Related Commands

Command	Description
pim accept-register	Configures candidate RPs to filter PIM register messages.

pim spt-threshold infinity

To change the behavior of the last hop router to always use the shared tree and never perform a shortest-path tree (SPT) switchover, use the **pim spt-threshold infinity** command in global configuration mode. To restore the default value, use the **no** form of this command.

pim spt-threshold infinity [**group-list** *acl*]

no pim spt-threshold

Syntax Description

group-list *acl*	(Optional) Indicates the source groups restricted by the access list. The *acl* argument must specify a standard ACL; extended ACLs are not supported.

Defaults

The last hop PIM router switches to the shortest-path source tree by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

If the **group-list** keyword is not used, this command applies to all multicast groups.

Examples

The following example causes the last hop PIM router to always use the shared tree instead of switching to the shortest-path source tree:

```
hostname(config)# pim spt-threshold infinity
```

Related Commands

Command	Description
multicast-routing	Enables multicast routing on the ASA.

ping

To test connectivity from a specified interface to an IP address, use the **ping** command in privileged EXEC mode.

ping {**tcp**] [*if_name*] [*host*] [*port*] [**repeat** *count*] [**timeout** *seconds*][**source** *host ports*] [**data** *pattern*] [**size** *bytes*] [**validate**]}

Note The **source** and *port* options are only available with the **tcp** option; the **data**, **size**, and **validate** options are not available with the **tcp** option.

Syntax Description

data *pattern*	(Optional) Specifies the 16-bit data pattern in hexidecimal format.
host	Specifies the IPv4 or IPv6 address or name of the host to ping. The name can be a DNS name or a name assigned with the **name** command. The maximum number of characters for DNA names is 128, and the maximum number of characters for names created with the **name** command is 63.
if_name	(Optional) For ICMP, this is the interface name, as configured by the **nameif** command, by which the *host* is accessible. If not supplied, then the *host* is resolved to an IP address and the routing table is consulted to determine the destination interface. For TCP, this is the input interface through which the source sends SYN packets.
pattern	(Optional) Specifies the 16-bit data pattern in hexidecimal format.
port	(Optional) Specifies the associated port number from 1-65535.
repeat *count*	(Optional) Specifies the number of times to repeat the ping request.
size *bytes*	(Optional) Specifies the datagram size in bytes.
source	(Optional) Specifies a certain IP address and port to send from (Use port = 0 for a random port).
tcp	(Optional) Tests a connection over TCP (the default is ICMP). The available interfaces are the following: • DMZ—Name of interface GigabitEthernet0/2 • Hostname or A.B.C.D—Ping destination IPv4 address or hostname • Hostname or X:X:X:X::X—Ping destination IPv6 address or hostname • internal—Name of interface GigabitEthernet0/3 • management—Name of interface Management0/0 • outside—Name of interface GigabitEthernet0/0 • publicl4tm—Name of interface GigabitEthernet0/1 **Note** TCP does not use the source interface address for pings.
timeout *seconds*	(Optional) Specifies the number of seconds of the timeout interval.
validate	(Optional) Validates reply data.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	Support for DNS names added.
8.4(1)	Added the **tcp** option.

Usage Guidelines

The **ping** command allows you to determine if the ASA has connectivity or if a host is available on the network. If the ASA has connectivity, make sure that the **icmp permit any** *interface* command is configured. This configuration is required to allow the ASA to respond and accept messages generated from the **ping** command. The **ping** command output shows if the response was received. If a host is not responding after you enter the **ping** command, a message similar to the following appears:

```
hostname(config)# ping 10.1.1.1
Sending 5, 100-byte ICMP Echos to 10.1.1.1, timeout is 2 seconds:
?????
Success rate is 0 percent (0/5)
```

Use the **show interface** command to ensure that the ASA is connected to the network and is passing traffic. The address of the specified *if_name* is used as the source address of the ping.

If you want internal hosts to ping external hosts over ICMP, you must do one of the following:

- Create an ICMP **access-list** command for an echo reply; for example, to give ping access to all hosts, use the **access-list acl_grp permit icmp any any** command and bind the **access-list** command to the interface that you want to test using the **access-group** command.
- Configure the ICMP inspection engine using the **inspect icmp** command. For example, adding the **inspect icmp** command to the **class default_inspection** class for the global service policy allows echo replies through the ASA for echo requests initiated by internal hosts.

You can also perform an extended ping, which allows you to enter the keywords one line at a time.

If you are pinging through the ASA between hosts or routers, but the pings are not successful, use the **capture** command to monitor the success of the ping.

The ASA **ping** command does not require an interface name. If you do not specify an interface name, the ASA checks the routing table to find the address that you specify. You can specify an interface name to indicate through which interface the ICMP echo requests are sent.

The **ping tcp** command requires the **enable** password and allows a maximum of two users to initiate simultaneous ping requests. In addition, this command does not support IPv6.

Examples

The following example shows how to determine if other IP addresses are visible from the ASA:

```
hostname# ping 171.69.38.1
Sending 5, 100-byte ICMP Echos to 171.69.38.1, timeout is 2 seconds:
```

```
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/10 ms
```

The following example specifies a host using a DNS name:

```
hostname# ping www.example.com
Sending 5, 100-byte ICMP Echos to www.example.com, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/10 ms
```

The following is an example of an extended ping:

```
hostname# ping
Interface: outside
Target IP address: 171.69.38.1
Repeat count: [5]
Datagram size: [100]
Timeout in seconds: [2]
Extended commands [n]:
Sweep range of sizes [n]:
Sending 5, 100-byte ICMP Echos to 171.69.38.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/10 ms
```

The following are examples of the **ping tcp** command:

```
hostname# ping
TCP [n]: yes
Interface: dmz
Target IP address: 10.0.0.1
Target IP port: 21
Specify source? [n]: y
Source IP address: 192.168.2.7
Source IP port: [0] 465
Repeat count: [5]
Timeout in seconds: [2] 5
Type escape sequence to abort.
Sending 5 TCP SYN requests to 10.0.0.1 port 21
from 192.168.2.7 starting port 465, timeout is 5 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/1 ms

hostname# ping tcp
Interface: dmz
Target IP address: 10.0.0.1
Target IP port: 21
Specify source? [n]:
Repeat count: [5] 3
Timeout in seconds: [2]
Type escape sequence to abort.
No source specified. Pinging from identity interface.
Sending 3 TCP SYN requests to 10.0.0.1 port 21
from 10.0.0.10, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/1 ms

hostname# ping tcp 10.0.0.1 21
Type escape sequence to abort.
No source specified. Pinging from identity interface.
Sending 5 TCP SYN requests to 10.0.0.1 port 21
from 10.0.0.10, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/1 ms
```

```
hostname# ping tcp 10.0.0.1 21 source 192.168.1.1 2002 repeat 10
Type escape sequence to abort.
Sending 10 TCP SYN requests to 10.0.0.1 port 21
from 192.168.1.1 starting port 2002, timeout is 2 seconds:
!!!!!!!!!!
Success rate is 100 percent (10/10), round-trip min/avg/max = 1/2/2 ms

hostname(config)# ping tcp www.example.com 80
Type escape sequence to abort.
No source specified. Pinging from identity interface.
Sending 5 TCP SYN requests to 74.125.19.103 port 80
from 171.63.230.107, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 3/4/4 ms

hostname# ping tcp 192.168.1.7 23 source 192.168.2.7 24966
Type escape sequence to abort.
Source port 24966 in use! Using port 24967 instead.
Sending 5 TCP SYN requests to 192.168.1.7 port 23
from 192.168.2.7 starting port 24967, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/1 ms

hostname(config)# ping tcp www.example.com 80
Type escape sequence to abort.
No source specified. Pinging from identity interface.
Error! Too many concurrent TCP ping sessions. Please wait...
```

Related Commands

Command	Description
capture	Captures packets at an interface.
icmp	Configures access rules for ICMP traffic that terminates at an interface.
show interface	Displays information about the VLAN configuration.

CHAPTER 39

police through pppoe client secondary Commands

police

To apply QoS policing to a class map, use the **police** command in class configuration mode. To remove the rate-limiting requirement, use the **no** form of this command. Policing is a way of ensuring that no traffic exceeds the maximum rate (in bits/second) that you configure, thus ensuring that no one traffic flow can take over the entire resource. When traffic exceeds the maximum rate, the ASA drops the excess traffic. Policing also sets the largest single burst of traffic allowed.

police {**output** | **input**} *conform-rate* [*conform-burst*] [**conform-action** [**drop** | **transmit**] [**exceed-action** [**drop** | **transmit**]]]

no police

Syntax Description

conform-burst	Specifies the maximum number of instantaneous bytes allowed in a sustained burst before throttling to the conforming rate value, between 1000 and 512000000 bytes.
conform-action	Sets the action to take when the rate is less than the *conform_burst* value.
conform-rate	Sets the rate limit for this traffic flow; between 8000 and 2000000000 bits per second.
drop	Drops the packet.
exceed-action	Sets the action to take when the rate is between the *conform-rate* value and the *conform-burst* value.
input	Enables policing of traffic flowing in the input direction.
output	Enables policing of traffic flowing in the output direction.
transmit	Transmits the packet.

Defaults

No default behavior or variables.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	Added the **input** option. Policing traffic in the inbound direction is now supported.

Usage Guidelines

To enable policing, use the Modular Policy Framework:

1. **class-map**—Identify the traffic on which you want to perform policing.

2. **policy-map**—Identify the actions associated with each class map.
   a. **class**—Identify the class map on which you want to perform actions.
   b. **police**—Enable policing for the class map.
3. **service-policy**—Assigns the policy map to an interface or globally.

Note The **police** command merely enforces the maximum speed and burst rate, forcing them to the conforming rate value. It does not enforce the **conform-action** or the **exceed-action** specification if these are present.

Note When the conform-burst parameter is omitted, the default value is assumed to be 1/32 of the conform-rate in bytes (that is, with a conform rate of 100,000, the default conform-burst value would be 100,000/32 = 3,125). Note that the conform-rate is in bits/second, whereas the conform-burst is in bytes.

You can configure each of the QoS features alone if desired for the ASA. Often, though, you configure multiple QoS features on the ASA so you can prioritize some traffic, for example, and prevent other traffic from causing bandwidth problems.

See the following supported feature combinations per interface:

- Standard priority queuing (for specific traffic) + Policing (for the rest of the traffic).

  You cannot configure priority queueing and policing for the same set of traffic.
- Traffic shaping (for all traffic on an interface) + Hierarchical priority queueing (for a subset of traffic).

Typically, if you enable traffic shaping, you do not also enable policing for the same traffic, although the ASA does not restrict you from configuring this.

See the following guidelines:

- QoS is applied unidirectionally; only traffic that enters the interface to which you apply the policy map is affected (or exits the interface, depending on the whether you specify **input** or **output**).
- If a service policy is applied or removed from an interface that has existing traffic already established, the QoS policy is not applied or removed from the traffic stream. To apply or remove the QoS policy for such connections, you must clear the connections and re-establish them. See the **clear conn** command.
- To-the-box traffic is not supported.
- Traffic to and from a VPN tunnel bypass interface is not supported.
- When you match a tunnel group class map, only outbound policing is supported.

Examples

The following is an example of a **police** command for the output direction that sets the conform rate to 100,000 bits per second, a burst value of 20,000 bytes, and specifies that traffic that exceeds the burst rate will be dropped:

```
hostname(config)# policy-map localpolicy1
hostname(config-pmap)# class-map firstclass
hostname(config-cmap)# class localclass
hostname(config-pmap-c)# police output 100000 20000 exceed-action drop
hostname(config-cmap-c)# class class-default
hostname(config-pmap-c)#
```

The following example shows how to do rate-limiting on traffic destined to an internal web server:

```
hostname# access-list http_traffic permit tcp any 10.1.1.0 255.255.255.0 eq 80
hostname# class-map http_traffic
hostname(config-cmap)# match access-list http_traffic
hostname(config-cmap)# policy-map outside_policy
hostname(config-pmap)# class http_traffic
hostname(config-pmap-c)# police input 56000
hostname(config-pmap-c)# service-policy outside_policy interface outside
hostname(config)#
```

Related Commands

class	Specifies a class-map to use for traffic classification.
clear configure policy-map	Remove all policy-map configuration, except that if a policy-map is in use in a service-policy command, that policy-map is not removed.
policy-map	Configures a policy; that is, an association of a traffic class and one or more actions.
show running-config policy-map	Display all current policy-map configurations.

policy

To specify the source for retrieving the CRL, use the **policy** command in ca-crl configuration mode.

policy {**static** | **cdp** | **both**}

Syntax Description

both	Specifies that if obtaining a CRL using the CRL distribution point fails, retry using static CDPs up to a limit of five.
cdp	Uses the CDP extension embedded within the certificate being checked. In this case, the ASA retrieves up to five CRL distributions points from the CDP extension of the certificate being verified and augments their information with the configured default values, if necessary. If the ASA attempt to retrieve a CRL using the primary CDP fails, it retries using the next available CDP in the list. This continues until either the ASA retrieves a CRL or exhausts the list.
static	Uses up to five static CRL distribution points. If you specify this option, specify also the LDAP or HTTP URLs with the **protocol** command.

Defaults

The default setting is **cdp**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
crl configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example enters ca-crl configuration mode, and configures CRL retrieval to occur using the CRL distribution point extension in the certificate being checked or if that fails, to use static CDPs:

```
hostname(configure)# crypto ca trustpoint central
hostname(ca-trustpoint)# crl configure
hostname(ca-crl)# policy both
```

Related Commands

Command	Description
crl configure	Enters ca-crl configuration mode.
crypto ca trustpoint	Enters trustpoint configuration mode.
url	Creates and maintains a list of static URLs for retrieving CRLs.

policy-map

When using the Modular Policy Framework, assign actions to traffic that you identified with a Layer 3/4 class map (the **class-map** or **class-map type management** command) by using the **policy-map** command (without the **type** keyword) in global configuration mode. To remove a Layer 3/4 policy map, use the **no** form of this command.

policy-map *name*

no policy-map *name*

Syntax Description

name	Specifies the name for this policy map up to 40 characters in length. All types of policy maps use the same name space, so you cannot reuse a name already used by another type of policy map.

Defaults

By default, the configuration includes a policy that matches all default application inspection traffic and applies certain inspections to the traffic on all interfaces (a global policy). Not all inspections are enabled by default. You can only apply one global policy, so if you want to alter the global policy, you need to either edit the default policy or disable it and apply a new one. (An interface policy overrides the global policy for a particular feature.)

The default policy includes the following application inspections:

- DNS inspection for the maximum message length of 512 bytes
- FTP
- H323 (H225)
- H323 (RAS)
- RSH
- RTSP
- ESMTP
- SQLnet
- Skinny (SCCP)
- SunRPC
- XDMCP
- SIP
- NetBios
- TFTP
- IP Options

The default policy configuration includes the following commands:

```
class-map inspection_default
 match default-inspection-traffic
policy-map type inspect dns preset_dns_map
 parameters
message-length maximum client auto
message-length maximum 512
```

```
dns-guard
protocol-enforcement
nat-rewrite
policy-map global_policy
 class inspection_default
  inspect dns preset_dns_map
  inspect ftp
  inspect h323 h225 _default_h323_map
  inspect h323 ras _default_h323_map
  inspect ip-options _default_ip_options_map
  inspect netbios
  inspect rsh
  inspect rtsp
  inspect skinny
  inspect esmtp _default_esmtp_map
  inspect sqlnet
  inspect sunrpc
  inspect tftp
  inspect sip
  inspect xdmcp
```

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Configuring Modular Policy Framework consists of four tasks:

1. Identify the Layer 3 and 4 traffic to which you want to apply actions using the **class-map** or **class-map type management** command.
2. (Application inspection only) Define special actions for application inspection traffic using the **policy-map type inspect** command.
3. Apply actions to the Layer 3 and 4 traffic using the **policy-map** command.
4. Activate the actions on an interface using the **service-policy** command.

The maximum number of policy maps is 64, but you can only apply one policy map per interface. You can apply the same policy map to multiple interfaces. You can identify multiple Layer 3/4 class maps in a Layer 3/4 policy map (see the **class** command), and you can assign multiple actions from one or more feature types to each class map.

Examples

The following is an example of a **policy-map** command for connection policy. It limits the number of connections allowed to the web server 10.1.1.1:

```
hostname(config)# access-list http-server permit tcp any host 10.1.1.1
```

```
hostname(config)# class-map http-server
hostname(config-cmap)# match access-list http-server

hostname(config)# policy-map global-policy
hostname(config-pmap)# description This policy map defines a policy concerning connection
to http server.
hostname(config-pmap)# class http-server
hostname(config-pmap-c)# set connection conn-max 256
```

The following example shows how multi-match works in a policy map:

```
hostname(config)# class-map inspection_default
hostname(config-cmap)# match default-inspection-traffic
hostname(config)# class-map http_traffic
hostname(config-cmap)# match port tcp eq 80

hostname(config)# policy-map outside_policy
hostname(config-pmap)# class inspection_default
hostname(config-pmap-c)# inspect http http_map
hostname(config-pmap-c)# inspect sip
hostname(config-pmap)# class http_traffic
hostname(config-pmap-c)# set connection timeout tcp 0:10:0
```

The following example shows how traffic matches the first available class map, and will not match any subsequent class maps that specify actions in the same feature domain:

```
hostname(config)# class-map telnet_traffic
hostname(config-cmap)# match port tcp eq 23
hostname(config)# class-map ftp_traffic
hostname(config-cmap)# match port tcp eq 21
hostname(config)# class-map tcp_traffic
hostname(config-cmap)# match port tcp range 1 65535
hostname(config)# class-map udp_traffic
hostname(config-cmap)# match port udp range 0 65535
hostname(config)# policy-map global_policy
hostname(config-pmap)# class telnet_traffic
hostname(config-pmap-c)# set connection timeout tcp 0:0:0
hostname(config-pmap-c)# set connection conn-max 100
hostname(config-pmap)# class ftp_traffic
hostname(config-pmap-c)# set connection timeout tcp 0:5:0
hostname(config-pmap-c)# set connection conn-max 50
hostname(config-pmap)# class tcp_traffic
hostname(config-pmap-c)# set connection timeout tcp 2:0:0
hostname(config-pmap-c)# set connection conn-max 2000
```

When a Telnet connection is initiated, it matches **class telnet_traffic**. Similarly, if an FTP connection is initiated, it matches **class ftp_traffic**. For any TCP connection other than Telnet and FTP, it will match **class tcp_traffic**. Even though a Telnet or FTP connection can match **class tcp_traffic**, the ASA does not make this match because they previously matched other classes.

NetFlow events are configured through Modular Policy Framework. If Modular Policy Framework is not configured for NetFlow, no events are logged. Traffic is matched based on the order in which classes are configured. After a match is detected, no other classes are checked. For NetFlow events, the configuration requirements are as follows:

- A flow-export destination (that is, a NetFlow collector) is uniquely identified by its IP address.
- Supported event types are flow-create, flow-teardown, flow-denied, flow-update, and all, which include the four previously listed event types.
- Use the **flow-export event-type** {**all** | **flow-create** | **flow-denied** | **flow-update** | **flow-teardown**} **destination** command to configure the address of NetFlow collectors and filters to determine which NetFlow records should be sent to each collector.

- Flow-export actions are not supported in interface policies.
- Flow-export actions are only supported in the **class-default** command and in classes with the **match any** or **match access-list** command.
- If no NetFlow collector has been defined, no configuration actions occur.
- NetFlow Secure Event Logging filtering is order-independent.

The following example exports all NetFlow events between hosts 10.1.1.1 and 20.1.1.1 to destination 15.1.1.1.

```
hostname(config)# access-list flow_export_acl permit ip host 10.1.1.1 host 20.1.1.1
hostname(config)# class-map flow_export_class
hostname(config-cmap)# match access-list flow_export_acl
hostname(config)# policy-map global_policy
hostname(config-pmap)# class flow_export_class
hostname(config-pmap-c)# flow-export event-type all destination 15.1.1.1
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
clear configure policy-map	Removes all policy map configuration. If a policy map is in use in a **service-policy** command, that policy map is not removed.
class-map	Defines a traffic class map.
service-policy	Assigns the policy map to an interface or globally to all interfaces.
show running-config policy-map	Display all current policy map configurations.

policy-map type inspect

When using the Modular Policy Framework, define special actions for inspection application traffic by using the **policy-map type inspect** command in global configuration mode. To remove an inspection policy map, use the **no** form of this command.

policy-map type inspect *application policy_map_name*

no policy-map [**type inspect** *application*] *policy_map_name*

Syntax Description

application	Specifies the type of application traffic you want to act upon. Available types include: • **dcerpc** • **dns** • **esmtp** • **ftp** • **gtp** • **h323** • **http** • **im** • **ip-options** • **ipsec-pass-thru** • **ipv6** • **mgcp** • **netbios** • **radius-accounting** • **rtsp** • **scansafe** • **sip** • **skinny** • **snmp**
policy_map_name	Specifies the name for this policy map up to 40 characters in length. Names that begin with "_internal" or "_default" are reserved and cannot be used. All types of policy maps use the same name space, so you cannot reuse a name already used by another type of policy map.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.
8.2(1)	Added the **ipv6** keyword to support IPv6 inspection.
9.0(1)	Added the **scansafe** keyword to support Cloud Web Security.

Usage Guidelines

Modular Policy Framework lets you configure special actions for many application inspections. When you enable an inspection engine using the **inspect** command in the Layer 3/4 policy map (the **policy-map** command), you can also optionally enable actions as defined in an inspection policy map created by the **policy-map type inspect** command. For example, enter the **inspect http http_policy_map** command where http_policy_map is the name of the inspection policy map.

An inspection policy map consists of one or more of the following commands entered in policy-map configuration mode. The exact commands available for an inspection policy map depends on the application.

- **match** command—You can define a **match** command directly in the inspection policy map to match application traffic to criteria specific to the application, such as a URL string. Then you enable actions in match configuration mode such as **drop**, **reset**, **log**, and so on. The **match** commands available depend on the application.
- **class** command—This command identifies an inspection class map in the policy map (see the **class-map type inspect** command to create the inspection class map). An inspection class map includes **match** commands that match application traffic with criteria specific to the application, such as a URL string, for which you then enable actions in the policy map. The difference between creating a class map and using a **match** command directly in the inspection policy map is that you can group multiple matches, and you can reuse class maps.
- **parameters** command—Parameters affect the behavior of the inspection engine. The commands available in parameters configuration mode depend on the application.

You can specify multiple **class** or **match** commands in the policy map.

Some **match** commands can specify regular expressions to match text inside a packet. See the **regex** command and the **class-map type regex** command, which groups multiple regular expressions.

The default inspection policy map configuration includes the following commands:

```
policy-map type inspect dns preset_dns_map
 parameters
 message-length maximum client auto
 message-length maximum 512
 dns-guard
 protocol-enforcement
 nat-rewrite
```

If a packet matches multiple different **match** or **class** commands, then the order in which the ASA applies the actions is determined by internal ASA rules, and not by the order they are added to the policy map. The internal rules are determined by the application type and the logical progression of parsing a packet, and are not user-configurable. For example for HTTP traffic, parsing a Request Method field precedes parsing the Header Host Length field; an action for the Request Method field occurs before the action for the Header Host Length field. For example, the following match commands can be entered in any order, but the **match request method get** command is matched first.

```
hostname(config-pmap)# match request header host length gt 100
hostname(config-pmap-c)# reset
hostname(config-pmap-c)# match request method get
hostname(config-pmap-c)# log
```

If an action drops a packet, then no further actions are performed. For example, if the first action is to reset the connection, then it will never match any further **match** commands. If the first action is to log the packet, then a second action, such as resetting the connection, can occur. (You can configure both the **reset** (or **drop-connection**, and so on.) and the **log** action for the same **match** command, in which case the packet is logged before it is reset for a given match.)

If a packet matches multiple **match** or **class** commands that are the same, then they are matched in the order they appear in the policy map. For example, for a packet with the header length of 1001, it will match the first command below, and be logged, and then will match the second command and be reset. If you reverse the order of the two **match** commands, then the packet will be dropped and the connection reset before it can match the second **match** command; it will never be logged.

```
hostname(config-pmap)# match request header length gt 100
hostname(config-pmap-c)# log
hostname(config-pmap-c)# match request header length gt 1000
hostname(config-pmap-c)# reset
```

A class map is determined to be the same type as another class map or **match** command based on the lowest priority **match** command in the class map (the priority is based on the internal rules). If a class map has the same type of lowest priority **match** command as another class map, then the class maps are matched according to the order they are added to the policy map. If the lowest priority command for each class map is different, then the class map with the higher priority **match** command is matched first.

See the following guidelines when modifying an inspection policy-map:

- HTTP inspection policy maps—If you modify an in-use HTTP inspection policy map (**policy-map type inspect http**), you must remove and reapply the **inspect http** *map* action for the changes to take effect. For example, if you modify the “http-map” inspection policy map, you must remove and readd the **inspect http http-map** command from the layer 3/4 policy:

  ```
  hostname(config)# policy-map test
  hostname(config-pmap)# class http0
  hostname(config-pmap-c)# no inspect http http-map
  hostname(config-pmap-c)# inspect http http-map
  ```

- All inspection policy maps—If you want to exchange an in-use inspection policy map for a different map name, you must remove the **inspect** *protocol map* command, and readd it with the new map. For example:

  ```
  hostname(config)# policy-map test
  hostname(config-pmap)# class sip
  hostname(config-pmap-c)# no inspect sip sip-map1
  hostname(config-pmap-c)# inspect sip sip-map2
  ```

Examples

The following is an example of an HTTP inspection policy map and the related class maps. This policy map is activated by the Layer 3/4 policy map, which is enabled by the service policy.

```
hostname(config)# regex url_example example\.com
hostname(config)# regex url_example2 example2\.com
hostname(config)# class-map type regex match-any URLs
hostname(config-cmap)# match regex example
hostname(config-cmap)# match regex example2

hostname(config-cmap)# class-map type inspect http match-all http-traffic
hostname(config-cmap)# match req-resp content-type mismatch
hostname(config-cmap)# match request body length gt 1000
hostname(config-cmap)# match not request uri regex class URLs

hostname(config-cmap)# policy-map type inspect http http-map1
hostname(config-pmap)# class http-traffic
hostname(config-pmap-c)# drop-connection log
hostname(config-pmap-c)# match req-resp content-type mismatch
hostname(config-pmap-c)# reset log
hostname(config-pmap-c)# parameters
hostname(config-pmap-p)# protocol-violation action log

hostname(config-pmap-p)# policy-map test
hostname(config-pmap)# class test (a Layer 3/4 class map not shown)
hostname(config-pmap-c)# inspect http http-map1

hostname(config-pmap-c)# service-policy inbound_policy interface outside
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
parameters	Enters parameter configuration mode for an inspection policy map.
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

policy-server-secret

To configure a secret key used to encrypt authentication requests to a SiteMinder SSO server, use the **policy-server-secret** command in webvpn-sso-siteminder configuration mode. To remove a secret key, use the **no** form of this command.

policy-server-secret *secret-key*

no policy-server-secret

Note This command is required for SiteMinder SSO authentication.

Syntax Description

secret-key	The character string used as a secret key to encrypt authentication communications. There is no minimum or maximum number of characters.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Config-webvpn-sso-siteminder configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

Single sign-on support, available only for WebVPN, lets users access different secure services on different servers without entering a username and password more than once. You first create the SSO server using the **sso-server** command. For SiteMinder SSO servers, the **policy-server-secret** command secures authentication communications between the ASA and the SSO server.

The command argument, *secret-key*, is similar to a password: you create it, save it, and configure it. It is configured on both the ASA using the **`policy-server-secret`** command and on the SiteMinder Policy Server using the Cisco Java plug-in authentication scheme.

This command applies only to the SiteMinder type of SSO server.

Examples

The following command, entered in config-webvpn-sso-siteminder mode and including a random character string as an argument, creates a secret key for SiteMinder SSO server authentication communications:

```
hostname(config-webvpn)# sso-server my-sso-server type siteminder
hostname(config-webvpn-sso-siteminder)# policy-server-secret @#ET&
hostname(config-webvpn-sso-siteminder)#
```

Related Commands

Command	Description
max-retry-attempts	Configures the number of times the ASA retries a failed SSO authentication attempt.
request-timeout	Specifies the number of seconds before a failed SSO authentication attempt times out.
show webvpn sso-server	Displays the operating statistics for all SSO servers configured on the security device
sso-server	Creates a single sign-on server.
test sso-server	Tests an SSO server with a trial authentication request.
web-agent-url	Specifies the SSO server URL to which the ASA makes SiteMinder SSO authentication requests.

polltime interface

To specify the data interface poll and hold times in an Active/Active failover configuration, use the **polltime interface** command in failover group configuration mode. To restore the default value, use the **no** form of this command.

polltime interface [**msec**] *time* [**holdtime** *time*]

no polltime interface [**msec**] *time* [**holdtime** *time*]

Syntax Description

holdtime *time*	(Optional) Sets the time during which a data interface must receive a hello message from the peer interface, after which the peer interface is declared failed. Valid values are from 5 to 75 seconds.
interface *time*	Specifies data interface polling period. Valid values are from 3 to 15 seconds. If the optional **msec** keyword is used, the valid values are from 500 to 999 milliseconds.
msec	(Optional) Specifies that the given time is in milliseconds.

Defaults

The poll *time* is 5 seconds.

The **holdtime** *time* is 5 times the poll *time*.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Failover group configuration	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	The command was changed to include the optional **holdtime** *time* value and the ability to specify the poll time in milliseconds.

Usage Guidelines

Use the **polltime interface** command to change the frequency that hello packets are sent out on interfaces associated with the specified failover group. This command is available for Active/Active failover only. Use the **failover polltime interface** command in Active/Standby failover configurations.

You cannot enter a **holdtime** value that is less than 5 times the poll time. With a faster poll time, the ASA can detect failure and trigger failover faster. However, faster detection can cause unnecessary switchovers when the network is temporarily congested. Interface testing begins when a hello packet is not heard on the interface for over half the hold time.

You can include both **failover polltime unit** and **failover polltime interface** commands in the configuration.

Note When CTIQBE traffic is passed through a ASA in a failover configuration, you should decrease the failover hold time on the ASA to below 30 seconds. The CTIQBE keepalive timeout is 30 seconds and may time out before failover occurs in a failover situation. If CTIQBE times out, Cisco IP SoftPhone connections to Cisco CallManager are dropped, and the IP SoftPhone clients need to reregister with the CallManager.

Examples

The following partial example shows a possible configuration for a failover group. The interface poll time is set to 500 milliseconds and the hold time to 5 seconds for data interfaces in failover group 1.

```
hostname(config)# failover group 1
hostname(config-fover-group)# primary
hostname(config-fover-group)# preempt 100
hostname(config-fover-group)# polltime interface msec 500 holdtime 5
hostname(config-fover-group)# exit
hostname(config)#
```

Related Commands

Command	Description
failover group	Defines a failover group for Active/Active failover.
failover polltime	Specifies the unit failover poll and hold times.
failover polltime interface	Specifies the interface poll and hold times for Active/Standby failover configurations.

pop3s

To enter POP3S configuration mode, use the **pop3s** command in global configuration mode. To remove any commands entered in POP3S command mode, use the **no** version of this command.

POP3 is a client/server protocol in which your Internet server receives and holds e-mail for you. Periodically, you (or your client e-mail receiver) check your mail-box on the server and download any mail. This standard protocol is built into most popular e-mail products. POP3S lets you receive e-mail over an SSL connection.

pop3s

no pop3

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to enter POP3S configuration mode:

```
hostname(config)# pop3s
hostname(config-pop3s)#
```

Related Commands

Command	Description
clear configure pop3s	Removes the POP3S configuration.
show running-config pop3s	Displays the running configuration for POP3S.

port

To specify the port an e-mail proxy listens to, use the **port** command in the applicable e-mail proxy command mode. To revert to the default value, use the **no** version of this command.

port {*portnum*}

no port

Syntax Description

portnum	The port for the e-mail proxy to use. To avoid conflicts with local TCP services, use port numbers in the range 1024 to 65535.

Defaults

The default ports for e-mail proxies are as follows:

E-mail Proxy	Default Port
IMAP4S	993
POP3S	995
SMTPS	988

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Pop3s	•	—	•	—	—
Imap4s	•	—	•	—	—
Smtps	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To avoid conflicts with local TCP services, use port numbers in the range 1024 to 65535.

Examples

The following example shows how to set port 1066 for the IMAP4S e-mail proxy:

```
hostname(config)# imap4s
hostname(config-imap4s)# port 1066
```

port-channel load-balance

For EtherChannels, to specify the load-balancing algorithm, use the **port-channel load-balance** command in interface configuration mode. To set the value to the default, use the **no** form of this command.

port-channel load-balance {**dst-ip** | **dst-ip-port** | **dst-mac** | **dst-port** | **src-dst-ip** | **src-dst-ip-port** | **src-dst-mac** | **src-dst-port** | **src-ip** | **src-ip-port** | **src-mac** | **src-port** | **vlan-dst-ip** | **vlan-dst-ip-port** | **vlan-only** | **vlan-src-dst-ip** | **vlan-src-dst-ip-port** | **vlan-src-ip** | **vlan-src-ip-port**}

no port-channel load-balance

Syntax Description

dst-ip	Balances the packet load on interfaces according to the following characteristics of the packet: • Destination IP address
dst-ip-port	Balances the packet load on interfaces according to the following characteristics of the packet: • Destination IP address • Destination Port
dst-mac	Balances the packet load on interfaces according to the following characteristics of the packet: • Destination MAC address
dst-port	Balances the packet load on interfaces according to the following characteristics of the packet: • Destination port
src-dst-ip	(Default) Balances the packet load on interfaces according to the following characteristics of the packet: • Source IP address • Destination IP address
src-dst-ip-port	Balances the packet load on interfaces according to the following characteristics of the packet: • Source IP address • Destination IP address • Source Port • Destination Port
src-dst-mac	Balances the packet load on interfaces according to the following characteristics of the packet: • Source MAC address • Destination MAC address

src-dst-port	Balances the packet load on interfaces according to the following characteristics of the packet: • Source port • Destination port
src-ip	Balances the packet load on interfaces according to the following characteristics of the packet: • Source IP address
src-ip-port	Balances the packet load on interfaces according to the following characteristics of the packet: • Source IP address • Source port
src-mac	Balances the packet load on interfaces according to the following characteristics of the packet: • Source MAC address
src-port	Balances the packet load on interfaces according to the following characteristics of the packet: • Source port
vlan-dst-ip	Balances the packet load on interfaces according to the following characteristics of the packet: • VLAN • Destination IP address
vlan-dst-ip-port	Balances the packet load on interfaces according to the following characteristics of the packet: • VLAN • Destination IP address • Destination port
vlan-only	Balances the packet load on interfaces according to the following characteristics of the packet: • VLAN
vlan-src-dst-ip	Balances the packet load on interfaces according to the following characteristics of the packet: • VLAN • Source IP address • Destination IP address
vlan-src-dst-ip-port	Balances the packet load on interfaces according to the following characteristics of the packet: • VLAN • Source IP address • Destination IP address • Source port • Destination port

vlan-src-ip	Balances the packet load on interfaces according to the following characteristics of the packet: • VLAN • Source IP address
vlan-src-ip-port	Balances the packet load on interfaces according to the following characteristics of the packet: • VLAN • Source IP address • Source port

Command Default

The default is **src-dst-ip**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Interface configuration	•	•	•	—	•

Command History

Release	Modification
8.4(1)	We introduced this command.

Usage Guidelines

By default, the ASA balances the packet load on interfaces according to the source and destination IP address (**src-dst-ip**) of the packet. If you want to change the properties on which the packet is categorized, use this command. For example, if your traffic is biased heavily towards the same source and destination IP addresses, then the traffic assignment to interfaces in the EtherChannel will be unbalanced. Changing to a different algorithm can result in more evenly distributed traffic.

The ASA distributes packets to the interfaces in the EtherChannel by hashing the load-balancing criteria. The hash result is a 3-bit value (0 to 7).

The eight hash result values are distributed in a round robin fashion between the channel group interfaces, starting with the interface with the lowest ID (slot/port). For example, all packets with a hash result of 0 go to GigabitEthernet 0/0, packets with a hash result of 1 go to GigabitEthernet 0/1, packets with a hash result of 2 go to GigabitEthernet 0/2, and so on.

Because there are eight hash result values regardless of how many active interfaces are in the EtherChannel, packets might not be distributed evenly depending on the number of active interfaces.

Table 39-1 shows the load balancing amounts per interface for each number of active interfaces. The active interfaces in **bold** have even distribution.

Table 39-1 Load Distribution per Interface

# of Active Interfaces	% Distribution Per Interface							
	1	2	3	4	5	6	7	8
1	**100%**	—	—	—	—	—	—	—
2	**50%**	**50%**	—	—	—	—	—	—
3	37.5%	37.5%	25%	—	—	—	—	—
4	**25%**	**25%**	**25%**	**25%**	—	—	—	—
5	25%	25%	25%	12.5%	12.5%	—	—	—
6	25%	25%	12.5%	12.5%	12.5%	12.5%	—	—
7	25%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	—
8	**12.5%**	**12.5%**	**12.5%**	**12.5%**	**12.5%**	**12.5%**	**12.5%**	**12.5%**

If an active interface goes down and is not replaced by a standby interface, then traffic is rebalanced between the remaining links. The failure is masked from both Spanning Tree at Layer 2 and the routing table at Layer 3, so the switchover is transparent to other network devices.

Examples

The following example sets the load-balancing algorithm to use the source and destination IP addresses and ports:

```
hostname(config)# interface port-channel 1
hostname(config-if)# port-channel load-balance src-dst-ip-port
```

Related Commands

Command	Description
channel-group	Adds an interface to an EtherChannel.
interface port-channel	Configures an EtherChannel.
lacp max-bundle	Specifies the maximum number of active interfaces allowed in the channel group.
lacp port-priority	Sets the priority for a physical interface in the channel group.
lacp system-priority	Sets the LACP system priority.
port-channel min-bundle	Specifies the minimum number of active interfaces required for the port-channel interface to become active.
show lacp	Displays LACP information such as traffic statistics, system identifier and neighbor details.
show port-channel	Displays EtherChannel information in a detailed and one-line summary form. This command also displays the port and port-channel information.
show port-channel load-balance	Displays port-channel load-balance information along with the hash result and member interface selected for a given set of parameters.

port-channel min-bundle

For EtherChannels, to specify the minimum number of active interfaces required for the port-channel interface to become active, use the **port-channel min-bundle** command in interface configuration mode. To set the value to the default, use the **no** form of this command.

port-channel min-bundle *number*

no port-channel min-bundle

Syntax Description

number	Specifies the minimum number of active interfaces required for the port-channel interface to become active, between 1 and 8.

Command Default

The default is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Interface configuration	•	•	•	—	•

Command History

Release	Modification
8.4(1)	We introduced this command.

Usage Guidelines

Enter this command for a port-channel interface. If the active interfaces in the channel group falls below this value, then the port-channel interface goes down, and could trigger a device-level failover.

Examples

The following example sets the minimum number of active interfaces required for the port-channel to become active to two:

```
hostname(config)# interface port-channel 1
hostname(config-if)# port-channel min-bundle 2
```

Related Commands

Command	Description
channel-group	Adds an interface to an EtherChannel.
interface port-channel	Configures an EtherChannel.
lacp max-bundle	Specifies the maximum number of active interfaces allowed in the channel group.

Command	Description
lacp port-priority	Sets the priority for a physical interface in the channel group.
lacp system-priority	Sets the LACP system priority.
port-channel load-balance	Configures the load-balancing algorithm.
show lacp	Displays LACP information such as traffic statistics, system identifier and neighbor details.
show port-channel	Displays EtherChannel information in a detailed and one-line summary form. This command also displays the port and port-channel information.
show port-channel load-balance	Displays port-channel load-balance information along with the hash result and member interface selected for a given set of parameters.

port-channel span-cluster

To sets this EtherChannel as a spanned EtherChannel in an ASA cluster, use the **port-channel span-cluster** command in interface configuration mode. To disable spanning, use the **no** form of this command.

port-channel span-cluster [**vss-load-balance**]

no port-channel span-cluster [**vss-load-balance**]

Syntax Description

vss-load-balance	(Optional) Enables VSS load balancing. If you are connecting the ASA to two switches in a VSS or vPC, then you should enable VSS load balancing. This feature ensures that the physical link connections between the ASAs to the VSS (or vPC) pair are balanced. You must configure the **vss-id** keyword in the **channel-group** command for each member interface before enabling load balancing.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	—	•

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

You must be in spanned EtherChannel mode (**cluster interface-mode spanned**) to use this feature.

This feature lets you group one or more interfaces per unit into an EtherChannel that spans all units in the cluster. The EtherChannel aggregates the traffic across all the available active interfaces in the channel. A spanned EtherChannel can be configured in both routed and transparent firewall modes. In routed mode, the EtherChannel is configured as a routed interface with a single IP address. In transparent mode, the IP address is assigned to the bridge group, not to the interface. The EtherChannel inherently provides load balancing as part of basic operation.

Examples

The following example creates an EtherChannel (port-channel 2) with the tengigabitethernet 0/8 interface as the only member, and then spans the EtherChannel across the cluster. Two subinterfaces are added to port-channel 2.

```
interface tengigabitethernet 0/8
```

```
    channel-group 2 mode active
    no shutdown
interface port-channel 2
    port-channel span-cluster
interface port-channel 2.10
    vlan 10
    nameif inside
    ip address 10.10.10.5 255.255.255.0
    ipv6 address 2001:DB8:1::5/64
    mac-address 000C.F142.4CDE
interface port-channel 2.20
    vlan 20
    nameif outside
    ip address 209.165.201.1 255.255.255.224
    ipv6 address 2001:DB8:2::8/64
    mac-address 000C.F142.5CDE
```

Related Commands

Command	Description
interface	Enters interface configuration mode.
cluster interface-mode	Sets the cluster interface mode, for either Spanned EtherChannels or individual interfaces.

port-forward

To configure the set of applications that users of clientless SSL VPN session can access over forwarded TCP ports, use the **port-forward** command in webvpn configuration mode.

port-forward {*list_name local_port remote_server remote_port description*}

To configure access to multiple applications, use this command with the same *list_name* multiple times, once for each application.

To remove a configured application from a list, use the **no port-forward** *list_name local_port* command (you need not include the *remote_server* and *remote_port* parameters).

no port-forward *listname localport*

To remove an entire configured list, use the **no port-forward** *list_name* command.

no port-forward *list_name*

Syntax Description

description	Provides the application name or short description that displays on the end user Port Forwarding Java applet screen. Maximum 64 characters.
list_name	Groups the set of applications (forwarded TCP ports) users of clientless SSL VPN sessions can access. Maximum 64 characters.
local_port	Specifies the local port that listens for TCP traffic for an application. You can use a local port number only once for a *list_name*. Enter a port number in the range 1-65535. To avoid conflicts with existing services, use a port number greater than 1024.
remote_port	Specifies the port to connect to for this application on the remote server. This is the actual port the application uses. Enter a port number in the range 1-65535 or port name.
remote_server	Provides the DNS name or IP address of the remote server for an application. If you enter the IP address, you may enter it in either IPv4 or IPv6 format. We recommend using a host name so that you do not have to configure the client applications for a specific IP addresses. The dns server-group command **name-server** must resolve the host name to an IP address.

Defaults

There is no default port forwarding list.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration mode	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.0(2)	The command mode was changed to webvpn.

Usage Guidelines

Port forwarding does not support Microsoft Outlook Exchange (MAPI) proxy. However, you can configure Smart Tunnel support for Microsoft Outlook Exchange 2010.

Examples

The following table shows the values used for example applications.

Application	Local Port	Server DNS Name	Remote Port	Description
IMAP4S e-mail	20143	IMAP4Sserver	143	Get Mail
SMTPS e-mail	20025	SMTPSserver	25	Send Mail
DDTS over SSH	20022	DDTSserver	22	DDTS over SSH
Telnet	20023	Telnetserver	23	Telnet

The following example shows how to create a port forwarding list called *SalesGroupPorts* that provides access to these applications:

```
hostname(config)# webvpn
hostname(config-webvpn)# port-forward SalesGroupPorts 20143 IMAP4Sserver 143 Get Mail
hostname(config-webvpn)# port-forward SalesGroupPorts 20025 SMTPSserver 25 Send Mail
hostname(config-webvpn)# port-forward SalesGroupPorts 20022 DDTSserver 22 DDTS over SSH
hostname(config-webvpn)# port-forward SalesGroupPorts 20023 Telnetserver 23 Telnet
```

Related Commands

Command	Description
port-forward auto-start	Entered in group-policy webvpn or username webvpn mode, this command starts port forwarding automatically and assigns the specified port forwarding list when the user logs onto a clientless SSL VPN session.
port-forward enable	Entered in group-policy webvpn or username webvpn mode, this command starts assigns the specified port forwarding list when the user logs on, but requires the user to start port forwarding manually, using the **Application Access > Start Applications** button on the clientless SSL VPN portal page.
port-forward disable	Entered in group-policy webvpn or username webvpn mode, this command turns off port forwarding.

port-forward-name

To configure the display name that identifies TCP port forwarding to end users for a particular user or group policy, use the **port-forward-name** command in webvpn mode, which you enter from group-policy or username mode. To delete the display name, including a null value created by using the **port-forward-name none** command**,** use the no form of the command. The **no** option restores the default name, "Application Access." To prevent a display name, use the **port-forward none** command.

port-forward-name {**value** *name* | **none**}

no port-forward-name

Syntax Description

none	Indicates that there is no display name. Sets a null value, thereby disallowing a display name. Prevents inheriting a value.
value *name*	Describes port forwarding to end users. Maximum of 255 characters.

Defaults

The default name is "Application Access."

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to set the name, "Remote Access TCP Applications," for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# port-forward-name value Remote Access TCP Applications
```

Related Commands

Command	Description
webvpn	Use in group-policy configuration mode or in username configuration mode. Lets you enter webvpn mode to configure parameters that apply to group policies or usernames.
webvpn	Use in global configuration mode. Lets you configure global settings for WebVPN.

port-object

To add a port object to a service object group of the type TCP, UDP, or TCP-UDP, use the **port-object** command in object-group service configuration mode. To remove port objects, use the **no** form of this command.

port-object {**eq** *port* | **range** *begin_port end_port*}

no port-object {**eq** *port* | **range** *begin_port end_port*}

Syntax Description

range *begin_port end_port*	Specifies a range of ports (inclusive), between 0 and 65535.
eq *port*	Specifies the decimal number (between 0 and 65535) or name of a TCP or UDP port for a service object.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Object-network service configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	We introduced this command.

Usage Guidelines

The **port-object** command is used with the **object-group service** *protocol* command to define an object that is either a specific port or a range of ports.

If a name is specified for a TCP or UDP service, it must be one of the supported TCP or/and UDP names, and must be consistent with the protocol type of the object group. For instance, for a protocol types of tcp, udp, and tcp-udp, the names must be a valid TCP service name, a valid UDP service name, or a valid TCP and UDP service name, respectively.

If a number is specified, translation to its corresponding name (if one exists) based on the protocol type will be made when showing the object.

The following service names are supported:

TCP	UDP	TCP and UDP
bgp	biff	discard
chargen	bootpc	domain
cmd	bootps	echo
daytime	dnsix	pim-auto-rp
exec	nameserver	sunrpc
finger	mobile-ip	syslog
ftp	netbios-ns	tacacs
ftp-data	netbios-dgm	talk
gopher	ntp	
ident	rip	
irc	snmp	
h323	snmptrap	
hostname	tftp	
http	time	
klogin	who	
kshell	xdmcp	
login	isakmp	
lpd		
nntp		
pop2		
pop3		
smtp		
sqlnet		
telnet		
uucp		
whois		
www		

Examples

This example shows how to use the **port-object** command in service configuration mode to create a new port (service) object group:

```
hostname(config)# object-group service eng_service tcp
hostname(config-service)# port-object eq smtp
hostname(config-service)# port-object eq telnet
hostname(config)# object-group service eng_service udp
hostname(config-service)# port-object eq snmp
hostname(config)# object-group service eng_service tcp-udp
hostname(config-service)# port-object eq domain
hostname(config-service)# port-object range 2000 2005
```

```
hostname(config-service)# quit
```

Related Commands

Command	Description
clear configure object-group	Removes all the **object-group** commands from the configuration.
group-object	Adds network object groups.
network-object	Adds a network object to a network object group.
object-group	Defines object groups to optimize your configuration.
show running-config object-group	Displays the current object groups.

portal-access-rule

This command allows customers to configure a global clientless SSL VPN access policy to permit or deny clientless SSL VPN sessions based on the data present in HTTP header. If denied, an error code is returned to the clients. This denial is performed before user authentication and thus minimizes the use of processing resources.

portal-access-rule none

portal-access-rule ***priority*** **[{permit | deny [code** ***code***]} **{any | user-agent match** ***string***}

no portal-access-rule ***priority*** **[{permit | deny [code** ***code***]} **{any | user-agent match** ***string***}]

clear configure webvpn portal-access-rule

Syntax Description

none	Removes all portal access rules. Clientless SSL VPN sessions will not restricted based on HTTP header.
priority	Priority of rule. Range: 1-65535.
permit	Permit access based upon HTTP header.
deny	Deny access based upon HTTP header.
code	Permit or deny access based on a returned HTTP status code. Default: 403.
code	The HTTP status code number based on which you want to permit or deny access. Range: 200-599.
any	Match any HTTP header string.
user-agent match	Enable comparison of strings in HTTP headers.
string	Specify the string to match in the HTTP header. Surround the string you are searching for with wildcards (*) for a match that contains your string or do not use wildcards to specify an exact match of your string. **Note** We recommend using wildcards in your search string. Without them, the rule may not match any strings or many fewer than you expect. If the string you are searching for has a space in it, the string must be enclosed in quotations; for example, "*a string*". When using both quotations and wild cards, your search string would look like this: "**a string**".
no portal-access-rule	Use to delete a single portal-access-rule.
clear configure webvpn portal-access-rule	Equivalent to portal-access-rule none command.

Defaults

portal-access-rule none

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
webvpn configuration mode	•	—	•	—	—

Command History

Release	Modification
8.2(5)	This command was introduced simultaneously in ASA 8.2.5 and 8.4(2)
8.4(2)	This command was introduced simultaneously in ASA 8.2.5 and 8.4(2)

Usage Guidelines

This check is performed prior to user authentication.

Examples

The following example creates three portal access rules:

- Portal access rule 1 denies attempted clientless SSL VPN connections when the ASA returns code 403 and Thunderbird is in the HTTP header.
- Portal access rule 10 permits attempted clientless SSL VPN connections when MSIE 8.0 (Microsoft Internet Explorer 8.0) is in the HTTP header.
- Portal access rule 65535 permits all other attempted clientless SSL VPN connections.

```
hostname(config)# webvpn
hostname(config-webvpn)# portal-access-rule 1 deny code 403 user-agent match *Thunderbird*
hostname(config-webvpn)# portal-access-rule 10 permit user-agent match "*MSIE 8.0*"
hostname(config-webvpn)# portal-access-rule 65535 permit any
```

Related Commands

Command	Description
show run webvpn	Displays webvpn configuration including all portal-access-rules.
show vpn-sessiondb detail webvpn	Display information about VPN sessions. The command includes options for displaying information in full or in detail, lets you specify type of sessions to display, and provides options to filter and sort the information.
debug webvpn request *n*	Enables logging of debug messages at a particular level of debugging. Default: 1. Range: 1-255.

post-max-size

To specify the maximum size allowed for an object to post, use the **post-max-size** command in group-policy webvpn configuration mode. To remove this object from the configuration, use the **no** version of this command.

post-max-size <*size*>

no post-max-size

Syntax Description

size	Specifies the maximum size allowed for a posted object. The range is 0 through 2147483647.

Defaults

The default size is 2147483647.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy webvpn configuration mode	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Setting the size to 0 effectively disallows object posting.

Examples

The following example sets the maximum size for a posted object to 1500 bytes:

```
hostname(config)# group-policy test attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# post-max-size 1500
```

Related Commands

Command	Description
download-max-size	Specifies the maximum size of an object to download.
upload-max-size	Specifies the maximum size of an object to upload.

Command	Description
webvpn	Use in group-policy configuration mode or in username configuration mode. Lets you enter webvpn mode to configure parameters that apply to group policies or usernames.
webvpn	Use in global configuration mode. Lets you configure global settings for WebVPN.

pppoe client route distance

To configure an administrative distance for routes learned through PPPoE, use the **pppoe client route distance** command in interface configuration mode. To restore the default setting, use the **no** form of this command.

pppoe client route distance *distance*

no pppoe client route distance *distance*

Syntax Description

distance	The administrative distance to apply to routes learned through PPPoE. Valid values are from 1 to 255.

Defaults

Routes learned through PPPoE are given an administrative distance of 1 by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

The **pppoe client route distance** command is checked only when a route is learned from PPPoE. If the **pppoe client route distance** command is entered after a route is learned from PPPoE, the administrative distance specified does not affect the existing learned route. Only routes learned after the command was entered have the specified administrative distance.

You must specify the **setroute** option on the **ip address pppoe** command to obtain routes through PPPoE.

If PPPoE is configured on multiple interfaces, you must use the **pppoe client route distance** command on each of the interfaces to indicate the priority of the installed routes. Enablgin PPPoE clients on multiple interfaces is only supported with object tracking.

You cannot configure failover if you obtain IP addresses using PPPoE.

Examples

The following example obtains the default route through PPPoE on GigabitEhternet0/2. The route is tracked by tracking entry object 1. The SLA operation monitors the availability of the 10.1.1.1 gateway off of the outside interface. If the SLA operation fails, then the secondary route obtained on GigabitEthernet0/3 through PPPoE is used.

```
hostname(config)# sla monitor 123
hostname(config-sla-monitor)# type echo protocol ipIcmpEcho 10.1.1.1 interface outside
hostname(config-sla-monitor-echo)# timeout 1000
hostname(config-sla-monitor-echo)# frequency 3
hostname(config)# sla monitor schedule 123 life forever start-time now
hostname(config)# track 1 rtr 123 reachability
hostname(config)# interface GigabitEthernet0/2
hostname(config-if)# pppoe client route track 1
hostname(config-if)# ip address pppoe setroute
hostname(config)# interface GigabitEthernet0/3
hostname(config-if)# pppoe client secondary track 1
hostname(config-if)# pppoe client route distance 254
hostname(config-if)# ip address pppoe setroute
```

Related Commands

Command	Description
ip address pppoe	Configures the specified interface with an IP address obtained through PPPoE.
ppoe client secondary	Configures tracking for secondary PPPoE client interface.
pppoe client route track	Associates routes learned through PPPoE with a tracking entry object.
sla monitor	Defines an SLA monitoring operation.
track rtr	Creates a tracking entry to poll the SLA.

pppoe client route track

To configure the PPPoE client to associate added routes with a specified tracked object number, use the **pppoe client route track** command in interface configuration mode. To remove the PPPoE route tracking, use the **no** form of this command.

pppoe client route track *number*

no pppoe client route track

Syntax Description

number	The tracking entry object ID. Valid values are from 1 to 500.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

The **pppoe client route track** command is checked only when a route is learned from PPPoE. If the **pppoe client route track** command is entered after a route is learned from PPPoE, the existing learned routes are not associated with a tracking object. Only routes learned after the command was entered are associated with the specified tracking object.

You must specify the **setroute** option on the **ip address pppoe** command to obtain routes through PPPoE.

If PPPoE is configured on multiple interfaces, you must use the **pppoe client route distance** command on each of the interfaces to indicate the priority of the installed routes. Enabling PPPoE clients on multiple interfaces is only supported with object tracking.

You cannot configure failover if you obtain IP addresses using PPPoE.

Examples

The following example obtains the default route through PPPoE on GigabitEhternet0/2. The route is tracked by tracking entry object 1. The SLA operation monitors the availability of the 10.1.1.1 gateway off of the outside interface. If the SLA operation fails, then the secondary route obtained on GigabitEthernet0/3 through PPPoE is used.

```
hostname(config)# sla monitor 123
```

```
hostname(config-sla-monitor)# type echo protocol ipIcmpEcho 10.1.1.1 interface outside
hostname(config-sla-monitor-echo)# timeout 1000
hostname(config-sla-monitor-echo)# frequency 3
hostname(config)# sla monitor schedule 123 life forever start-time now
hostname(config)# track 1 rtr 123 reachability
hostname(config)# interface GigabitEthernet0/2
hostname(config-if)# pppoe client route track 1
hostname(config-if)# ip address pppoe setroute
hostname(config)# interface GigabitEthernet0/3
hostname(config-if)# pppoe client secondary track 1
hostname(config-if)# pppoe client route distance 254
hostname(config-if)# ip address pppoe setroute
```

Related Commands

Command	Description
ip address pppoe	Configures the specified interface with an IP address obtained through PPPoE.
ppoe client secondary	Configures tracking for secondary PPPoE client interface.
pppoe client route distance	Assigns an administrative distance to routes learned through PPPoE.
sla monitor	Defines an SLA monitoring operation.
track rtr	Creates a tracking entry to poll the SLA.

pppoe client secondary

To configure the PPPoE client to register as a client of a tracked object and to be brought up or down based on the tracking state, use the **pppoe client secondary** command in interface configuration mode. To remove the client registration, use the **no** form of this command.

pppoe client secondary track *number*

no pppoe client secondary track

Syntax Description

number	The tracking entry object ID. Valid values are from 1 to 500.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

The **pppoe client secondary** command is checked only when PPPoE session starts. If the **pppoe client route track** command is entered after a route is learned from PPPoE, the existing learned routes are not associated with a tracking object. Only routes learned after the command was entered are associated with the specified tracking object.

You must specify the **setroute** option on the **ip address pppoe** command to obtain routes through PPPoE.

If PPPoE is configured on multiple interfaces, you must use the **pppoe client route distance** command on each of the interfaces to indicate the priority of the installed routes. Enabling PPPoE clients on multiple interfaces is only supported with object tracking.

You cannot configure failover if you obtain IP addresses using PPPoE.

Examples

The following example obtains the default route through PPPoE on GigabitEhternet0/2. The route is tracked by tracking entry object 1. The SLA operation monitors the availability of the 10.1.1.1 gateway off of the outside interface. If the SLA operation fails, then the secondary route obtained on GigabitEthernet0/3 through PPPoE is used.

```
hostname(config)# sla monitor 123
```

```
hostname(config-sla-monitor)# type echo protocol ipIcmpEcho 10.1.1.1 interface outside
hostname(config-sla-monitor-echo)# timeout 1000
hostname(config-sla-monitor-echo)# frequency 3
hostname(config)# sla monitor schedule 123 life forever start-time now
hostname(config)# track 1 rtr 123 reachability
hostname(config)# interface GigabitEthernet0/2
hostname(config-if)# pppoe client route track 1
hostname(config-if)# ip address pppoe setroute
hostname(config)# interface GigabitEthernet0/3
hostname(config-if)# pppoe client secondary track 1
hostname(config-if)# pppoe client route distance 254
hostname(config-if)# ip address pppoe setroute
```

Related Commands

Command	Description
ip address pppoe	Configures the specified interface with an IP address obtained through PPPoE.
ppoe client secondary	Configures tracking for secondary PPPoE client interface.
pppoe client route distance	Assigns an administrative distance to routes learned through PPPoE.
pppoe client route track	Associates routes learned through PPPoE with a tracking entry object.
sla monitor	Defines an SLA monitoring operation.

CHAPTER 40

pre-fill-username through pwd Commands

pre-fill-username

To enable extracting a username from a client certificate for use in authentication and authorization, use the **pre-fill-username** command in tunnel-group webvpn-attributes mode. To remove the attribute from the configuration, use the **no** form of this command.

pre-fill-username {**ssl-client** | **clientless**}

no pre-fill-username

Syntax Description

ssl-client	Enables this feature for AnyConnect VPN client connections.
clientless	Enables this feature for clientless connections.

Defaults

No default value or behavior.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Tunnel-group webvpn-attributes configuration	•	—	•	—	—

Command History

Release	Modification
8.0(4)	This command was introduced.

Usage Guidelines

The **pre-fill-username** command enables the use of a username extracted from the certificate field specified in the **username-from-certificate** command as the username for username/password authentication and authorization. To use this pre-fill username from certificate feature, you must configure both commands.

To enable this feature, you must also configure the **username-from-certificate** command in tunnel-group general-attributes mode.

Note In Releases 8.0.4 and 8.1.2, the username is not pre-filled; instead, any data sent in the username field is ignored.

Examples

The following example, entered in global configuration mode, creates an IPsec remote access tunnel group named remotegrp and specifies that the name for an authentication or authorization query for an SSL VPN client must be derived from a digital certificate:

```
hostname(config)# tunnel-group remotegrp type ipsec_ra
```

```
hostname(config)# tunnel-group remotegrp webvpn-attributes
hostname(config-tunnel-webvpn)# pre-fill-username ssl-client
hostname(config-tunnel-webvpn)#
```

Related Commands

Command	Description
pre-fill-username	Enables the pre-fill username feature.
show running-config tunnel-group	Shows the indicated tunnel-group configuration.
tunnel-group general-attributes	Specifies the general attributes for the named tunnel-group.
username-from-certificate	Specifies the field in a certificate to use as the username for authorization.

preempt

To cause the unit to become active on boot if it has the higher priority, use the **preempt** command in failover group configuration mode. To remove the preemption, use the **no** form of this command.

preempt [*delay*]

no preempt [*delay*]

Syntax Description

seconds	The wait time, in seconds, before the peer is preempted. Valid values are from 1 to 1200 seconds.

Defaults

By default, there is no delay.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Failover group configuration	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Assigning a primary or secondary priority to a failover group specifies which unit the failover group becomes active on when both units boot simultaneously (within a unit polltime). However, if one unit boots before the other, then both failover groups become active on that unit. When the other unit comes online, any failover groups that have the second unit as a priority do not become active on the second unit unless the failover group is configured with the **preempt** command or is manually forced to the other unit with the **no failover active** command. If the failover group is configured with the **preempt** command, the failover group automatically becomes active on the designated unit.

Note If Stateful Failover is enabled, the preemption is delayed until the connections are replicated from the unit on which the failover group is currently active.

Examples

The following example configures failover group 1 with the primary unit as the higher priority and failover group 2 with the secondary unit as the higher priority. Both failover groups are configured with the **preempt** command with a wait time of 100 seconds, so the groups will automatically become active on their preferred unit 100 seconds after the units become available.

```
hostname(config)# failover group 1
```

```
hostname(config-fover-group)# primary
hostname(config-fover-group)# preempt 100
hostname(config-fover-group)# exit
hostname(config)# failover group 2
hostname(config-fover-group)# secondary
hostname(config-fover-group)# preempt 100
hostname(config-fover-group)# mac-address e1 0000.a000.a011 0000.a000.a012
hostname(config-fover-group)# exit
hostname(config)#
```

Related Commands

Command	Description
failover group	Defines a failover group for Active/Active failover.
primary	Gives the primary unit in a failover pair priority for the failover group being configured.
secondary	Gives the secondary unit in a failover pair priority for the failover group being configured.

prefix-list

To create an entry in a prefix list for ABR type 3 LSA filtering, use the **prefix-list** command in global configuration mode. To remove a prefix list entry, use the **no** form of this command.

prefix-list *prefix-list-name* [**seq** *seq_num*] {**permit | deny**} *network/len* [**ge** *min_value*] [**le** *max_value*]

no prefix-list *prefix-list-name* [**seq** *seq_num*] {**permit | deny**} *network/len* [**ge** *min_value*] [**le** *max_value*]

Syntax Description

/	A required separator between the *network* and *len* values.
deny	Denies access for a matching condition.
ge *min_value*	(Optional) Specifies the minimum prefix length to be matched. The value of the *min_value* argument must be greater than the value of the *len* argument and less than or equal to the *max_value* argument, if present.
le *max_value*	(Optional) Specifies the maximum prefix length to be matched. The value of the *max_value* argument must be greater than or equal to the value of the *min_value* argument, if present, or greater than the value of the *len* argument if the *min_value* argument is not present.
len	The length of the network mask. Valid values are from 0 to 32.
network	The network address.
permit	Permits access for a matching condition.
prefix-list-name	The name of the prefix list. The prefix-list name cannot contain spaces.
seq *seq_num*	(Optional) Applies the specified sequence number to the prefix list being created.

Defaults

If you do not specify a sequence number, the first entry in a prefix list is assigned a sequence number of 5, and the sequence number for each subsequent entry is increased by 5.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

The **prefix-list** commands are ABR type 3 LSA filtering commands. ABR type 3 LSA filtering extends the capability of an ABR that is running OSPF to filter type 3 LSAs between different OSPF areas. Once a prefix list is configured, only the specified prefixes are sent from one area to another area. All other prefixes are restricted to their OSPF area. You can apply this type of area filtering to traffic going into or coming out of an OSPF area, or to both the incoming and outgoing traffic for that area.

When multiple entries of a prefix list match a given prefix, the entry with the lowest sequence number is used. The ASA begins the search at the top of the prefix list, with the entry with the lowest sequence number. Once a mach is made, the ASA does not go through the rest of the list. For efficiency, you may want to put the most common matches or denials near the top of the list by manually assigning them a lower sequence number.

By default, the sequence numbers are automatically generated. They can be suppressed with the **no prefix-list sequence-number** command. Sequence numbers are generated in increments of 5. The first sequence number generated in a prefix list would be 5. The next entry in that list would have a sequence number of 10, and so on. If you specify a value for an entry, and then do not specify values for subsequent entries, the generated sequence numbers are increased from the specified value in increments of 5. For example, if you specify that the first entry in the prefix list has a sequence number of 3, and then add two more entries without specifying a sequence number for the additional entries, the automatically generated sequence numbers for those two entries would be 8 and 13.

You can use the **ge** and **le** keywords to specify the range of the prefix length to be matched for prefixes that are more specific than the *network/len* argument. Exact match is assumed when neither the **ge** or **le** keywords are specified. The range is from *min_value* to 32 if only the **ge** keyword is specified.The range is from *len* to *max_value* if only the **le** keyword is specified.

The value of the *min_value* and *max_value* arguments must satisfy the following condition:

len < *min_value* <= *max_value* <= 32

Use the **no** form of the command to remove specific entries from the prefix list. Use the **clear configure prefix-list** command to remove a prefix list. The clear **configure prefix-list** command also removes the associated **prefix-list description** command, if any, from the configuration.

Examples

The following example denies the default route 0.0.0.0/0:

```
hostname(config)# prefix-list abc deny 0.0.0.0/0
```

The following example permits the prefix10.0.0.0/8:

```
hostname(config)# prefix-list abc permit 10.0.0.0/8
```

The following example shows how to accept a mask length of up to 24 bits in routes with the prefix 192/8:

```
hostname(config)# prefix-list abc permit 192.168.0.0/8 le 24
```

The following example shows how to deny mask lengths greater than 25 bits in routes with a prefix of 192/8:

```
hostname(config)# prefix-list abc deny 192.168.0.0/8 ge 25
```

The following example shows how to permit mask lengths from 8 to 24 bits in all address space:

```
hostname(config)# prefix-list abc permit 0.0.0.0/0 ge 8 le 24
```

The following example shows how to deny mask lengths greater than 25 bits in all address space:

```
hostname(config)# prefix-list abc deny 0.0.0.0/0 ge 25
```

The following example shows how to deny all routes with a prefix of 10/8:

```
hostname(config)# prefix-list abc deny 10.0.0.0/8 le 32
```

The following example shows how to deny all masks with a length greater than 25 bits for routes with a prefix of 192.168.1/24:

```
hostname(config)# prefix-list abc deny 192.168.1.0/24 ge 25
```

The following example shows how to permit all routes with a prefix of 0/0:

```
hostname(config)# prefix-list abc permit 0.0.0.0/0 le 32
```

Related Commands

Command	Description
clear configure prefix-list	Removes the **prefix-list** commands from the running configuration.
prefix-list description	Lets you to enter a description for a prefix list.
prefix-list sequence-number	Enables prefix list sequence numbering.
show running-config prefix-list	Displays the **prefix-list** commands in the running configuration.

prefix-list description

To add a description to a prefix list, use the **prefix-list description** command in global configuration mode. To remove a prefix list description, use the **no** form of this command.

prefix-list *prefix-list-name* **description** *text*

no prefix-list *prefix-list-name* **description** [*text*]

Syntax Description

prefix-list-name	The name of a prefix list.
text	The text of the prefix list description. You can enter a maximum of 80 characters.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You can enter **prefix-list** and **prefix-list description** commands in any order for a particular prefix list name; you do not need to create the prefix list before entering a prefix list description. The **prefix-list description** command will always appear on the line before the associated prefix list in the configuration, no matter what order you enter the commands.

If you enter a **prefix-list description** command for a prefix list entry that already has a description, the new description replaces the original description.

You do not need to enter the text description when using the **no** form of this command.

Examples

The following example adds a description for a prefix list named MyPrefixList. The **show running-config prefix-list** command shows that although the prefix list description has been added to the running configuration, the prefix-list itself has not been configured.

```
hostname(config)# prefix-list MyPrefixList description A sample prefix list description
hostname(config)# show running-config prefix-list

!
prefix-list MyPrefixList description A sample prefix list description
```

!

Related Commands

Command	Description
clear configure prefix-list	Removes the **prefix-list** commands from the running configuration.
prefix-list	Defines a prefix list for ABR type 3 LSA filtering.
show running-config prefix-list	Displays the **prefix-list** commands in the running configuration.

prefix-list sequence-number

To enable prefix list sequence numbering, use the **prefix-list sequence-number** command in global configuration mode. To disable prefix list sequence numbering, use the **no** form of this command.

prefix-list sequence-number

Syntax Description

This command has no arguments or keywords.

Defaults

Prefix list sequence numbering is enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Only the **no** form of this command appears in the configuration. When the **no** form of this command is in the configuration, the sequence numbers, including the manually configured ones, are removed from the **prefix-list** commands in the configuration and new prefix lists entries are not assigned a sequence number.

When prefix list sequence numbering is enabled, all prefix list entries are assigned sequence numbers using the default numbering method (starting with 5 and incrementing each number by 5). If a sequence number was manually assigned to a prefix list entry before numbering was disabled, the manually assigned number is restored. Sequence numbers that are manually assigned while automatic numbering is disabled are also restored, even though they are not displayed while numbering is disabled.

Examples

The following example disables prefix list sequence numbering:

```
hostname(config)# no prefix-list sequence-number
```

Related Commands

Command	Description
prefix-list	Defines a prefix list for ABR type 3 LSA filtering.
show running-config prefix-list	Displays the **prefix-list** commands in the running configuration.

prf

To specify the pseudo-random function (PRF) in an IKEv2 security association (SA) for AnyConnect IPsec connections, use the **prf** command in IKEv2 policy configuration mode. To remove the command and use the default setting, use the **no** form of this command:

prf {**md5** | **sha** | **sha256** | **sha384** | **sha512**}

no prf {**md5** | **sha** | **sha256** | **sha384** | **sha512**}

Syntax Description

md5	Specifies the MD5 algorithm.
sha	(Default) Specifies the Secure Hash Algorithm SHA 1.
sha256	Specifies the Secure Hash Algorithm SHA 2 with the 256-bit digest.
sha384	Specifies the Secure Hash Algorithm SHA 2 with the 384-bit digest.
sha512	Specifies the Secure Hash Algorithm SHA 2 with the 512-bit digest.

Defaults

The default is **sha** (SHA 1).

Usage Guidelines

An IKEv2 SA is a key used in phase 1 to enable IKEv2 peers to communicate securely in phase 2. After entering the **crypto ikev2 policy** command, use the **prf** command to select the pseudo-random function used for the construction of keying material for all of the cryptographic algorithms used in the SA.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	—	•	—	—

Command History

Release	Modification
8.4(1)	This command was added.
8.4(2)	The **sha256**, **sha384**, and **sha512** keywords were added for SHA 2 support.

Examples

The following example enters IKEv2 policy configuration mode and sets the PRF to MD5:

```
hostname(config)# crypto ikev2 policy 1
hostname(config-ikev2-policy)# prf md5
```

Related Commands

Command	Description
encryption	Specifies the encryption algorithm in an IKEv2 SA for AnyConnect IPsec connections.
group	Specifies the Diffie-Hellman group in an IKEv2 SA for AnyConnect IPsec connections.
integrity	Specifies the ESP integrity algorithm in an IKEv2 SA for AnyConnect IPsec connections.
lifetime	Specifies the SA lifetime for the IKEv2 SA for AnyConnect IPsec connections.

primary

To give the primary unit higher priority for a failover group, use the **primary** command in failover group configuration mode. To restore the default value, use the **no** form of this command.

primary

no primary

Syntax Description

This command has no arguments or keywords.

Defaults

If **primary** or **secondary** is not specified for a failover group, the failover group defaults to **primary**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Failover group configuration	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Assigning a primary or secondary priority to a failover group specifies which unit the failover group becomes active on when both units boot simultaneously (within a unit polltime). If one unit boots before the other, then both failover groups become active on that unit. When the other unit comes online, any failover groups that have the second unit as a priority do not become active on the second unit unless the failover group is configured with the **preempt** command or is manually forced to the other unit with the **no failover active** command.

Examples

The following example configures failover group 1 with the primary unit as the higher priority and failover group 2 with the secondary unit as the higher priority. Both failover groups are configured with the **preempt** command, so the groups will automatically become active on their preferred unit as the units become available.

```
hostname(config)# failover group 1
hostname(config-fover-group)# primary
hostname(config-fover-group)# preempt 100
hostname(config-fover-group)# exit
hostname(config)# failover group 2
hostname(config-fover-group)# secondary
hostname(config-fover-group)# preempt 100
hostname(config-fover-group)# mac-address e1 0000.a000.a011 0000.a000.a012
hostname(config-fover-group)# exit
```

```
hostname(config)#
```

Related Commands

Command	Description
failover group	Defines a failover group for Active/Active failover.
preempt	Forces the failover group to become active on its preferred unit when the unit becomes available.
secondary	Gives the secondary unit a higher priority than the primary unit.

priority (class)

To enable QoS priority queueing, use the **priority** command in class configuration mode. For critical traffic that cannot tolerate latency, such as voice over IP (VoIP), you can identify traffic for low latency queueing (LLQ) so that it is always transmitted at a minimum rate. To remove the priority requirement, use the **no** form of this command.

Note This command is not supported on the ASA Services Module.

priority

no priority

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or variables.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

LLQ priority queueing lets you prioritize certain traffic flows (such as latency-sensitive traffic like voice and video) ahead of other traffic.

The ASA supports two types of priority queueing:

- Standard priority queueing—Standard priority queueing uses an LLQ priority queue on an interface (see the **priority-queue** command), while all other traffic goes into the "best effort" queue. Because queues are not of infinite size, they can fill and overflow. When a queue is full, any additional packets cannot get into the queue and are dropped. This is called *tail drop*. To avoid having the queue fill up, you can increase the queue buffer size. You can also fine-tune the maximum number of packets allowed into the transmit queue. These options let you control the latency and robustness of the priority queuing. Packets in the LLQ queue are always transmitted before packets in the best effort queue.

- Hierarchical priority queueing—Hierarchical priority queueing is used on interfaces on which you enable a traffic shaping queue (the **shape** command). A subset of the shaped traffic can be prioritized. The standard priority queue is not used. See the following guidelines about hierarchical priority queueing:
  - Priority packets are always queued at the head of the shape queue so they are always transmitted ahead of other non-priority queued packets.
  - Priority packets are never dropped from the shape queue unless the sustained rate of priority traffic exceeds the shape rate.
  - For IPsec-encrypted packets, you can only match traffic based on the DSCP or precedence setting.
  - IPsec-over-TCP is not supported for priority traffic classification.

Configuring QoS with Modular Policy Framework

To enable priority queueing, use the Modular Policy Framework. You can use standard priority queueing or hierarchical priority queueing.

For standard priority queueing, perform the following tasks:

1. **class-map**—Identify the traffic on which you want to perform priority queueing.
2. **policy-map**—Identify the actions associated with each class map.
   a. **class**—Identify the class map on which you want to perform actions.
   b. **priority**—Enable priority queueing for the class map.
3. **service-policy**—Assigns the policy map to an interface or globally.

For hierarchical priority-queueing, perform the following tasks:

1. **class-map**—Identify the traffic on which you want to perform priority queueing.
2. **policy-map** (for priority queueing)—Identify the actions associated with each class map.
   a. **class**—Identify the class map on which you want to perform actions.
   b. **priority**—Enable priority queueing for the class map. You can only include the priority command in this policy map if you want to use is hierarchically.
3. **policy-map** (for traffic shaping)—Identify the actions associated with the **class-default** class map.
   a. **class class-default**—Identify the **class-default** class map on which you want to perform actions.
   b. **shape**—Apply traffic shaping to the class map.
   c. **service-policy**—Call the priority queueing policy map in which you configured the **priority** command so you can apply priority queueing to a subset of shaped traffic.
4. **service-policy**—Assigns the policy map to an interface or globally.

Examples

The following is an example of the **priority** command in policy-map configuration mode:

```
hostname(config)# policy-map localpolicy1
hostname(config-pmap)# class firstclass
hostname(config-pmap-c)# priority
hostname(config-pmap-c)# class class-default
hostname(config-pmap-c)#
```

Related Commands

class	Specifies a class map to use for traffic classification.
clear configure policy-map	Remove all policy-map configuration, except that if a policy-map is in use in a service-policy command, that policy-map is not removed.
policy-map	Configures a policy; that is, an association of a traffic class and one or more actions.
show running-config policy-map	Display all current policy-map configurations.

priority (cluster group)

To set the priority of this unit for master unit elections in an ASA cluster, use the **priority** command in cluster group configuration mode. To remove the priority, use the **no** form of this command.

priority *priority_number*

no priority [*priority_number*]

Syntax Description

priority_number	Sets the priority of this unit for master unit elections, between 1 and 100, where 1 is the highest priority.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Cluster group configuration	•	•	•	—	•

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

Members of the cluster communicate over the cluster control link to elect a master unit, as follows:

1. When you enable clustering for a unit (or when it first starts up with clustering already enabled), it broadcasts an election request every 3 seconds.
2. Any other units with a higher priority respond to the election request; the priority is set between 1 and 100, where 1 is the highest priority.
3. If after 45 seconds, a unit does not receive a response from another unit with a higher priority, then it becomes master.

Note If multiple units tie for the highest priority, the cluster unit name, and then the serial number is used to determine the master.

4. If a unit later joins the cluster with a higher priority, it does not automatically become the master unit; the existing master unit always remains as the master unless it stops responding, at which point a new master unit is elected.

Note You can manually force a unit to become the master using the **cluster master unit** command. For centralized features, if you force a master unit change, then all connections are dropped, and you have to re-establish the connections on the new master unit. See the configuration guide for a list of centralized features.

Examples

The following example sets the priority to 1 (the highest):

```
hostname(config)# cluster group cluster1
hostname(cfg-cluster)# priority 1
```

Related Commands

Command	Description
clacp system-mac	When using spanned EtherChannels, the ASA uses cLACP to negotiate the EtherChannel with the neighbor switch.
cluster group	Names the cluster and enters cluster configuration mode.
cluster-interface	Specifies the cluster control link interface.
cluster interface-mode	Sets the cluster interface mode.
conn-rebalance	Enables connection rebalancing.
console-replicate	Enables console replication from slave units to the master unit.
enable (cluster group)	Enables clustering.
health-check	Enables the cluster health check feature, which includes unit health monitoring and interface health monitoring.
key	Sets an authentication key for control traffic on the cluster control link.
local-unit	Names the cluster member.
mtu cluster-interface	Specifies the maximum transmission unit for the cluster control link interface.

priority (vpn load balancing)

To set the priority of the local device participating in the virtual load-balancing cluster, use the **priority** command in VPN load-balancing mode. To revert to the default priority specification, use the **no** form of this command.

priority *priority*

no priority

Syntax Description

priority	The priority, in the range of 1 to 10, that you want to assign to this device.

Defaults

The default priority depends on the model number of the device:

Model Number	Default Priority
5520	5
5540	7

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
VPN load-balancing	—	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You must first use the **vpn load-balancing** command to enter VPN load-balancing mode.

This command sets the priority of the local device participating in the virtual load-balancing cluster.

The priority must be an integer in the range of 1 (lowest) to 10 (highest).

The priority is used in the master-election process as one way to determine which of the devices in a VPN load-balancing cluster becomes the master or primary device for the cluster. See CLI configuration guide for details about the master-election process.

The **no** form of the command reverts the priority specification to the default value.

Examples

The following is an example of a VPN load-balancing command sequence that includes a **priority** command that sets the priority of the current device to 9:

```
hostname(config)# interface GigabitEthernet 0/1
```

```
hostname(config-if)# ip address 209.165.202.159 255.255.255.0
hostname(config)# nameif test
hostname(config)# interface GigabitEthernet 0/2
hostname(config-if)# ip address 209.165.201.30 255.255.255.0
hostname(config)# nameif foo
hostname(config)# vpn load-balancing
hostname(config-load-balancing)# priority 9
hostname(config-load-balancing)# interface lbpublic test
hostname(config-load-balancing)# interface lbprivate foo
hostname(config-load-balancing)# cluster ip address 209.165.202.224
hostname(config-load-balancing)# participate
```

Related Commands

Command	Description
vpn load-balancing	Enter VPN load-balancing mode.

priority-queue

To create a standard priority queue on an interface for use with the **priority** command, use the **priority-queue** command in global configuration mode. To remove the queue, use the **no** form of this command.

Note This command is not supported on ASA 5580 Ten Gigabit Ethernet interfaces. (Ten Gigabit Ethernet interfaces are supported for priority queues on the ASA 5585-X.) This command is also not supported for the ASA 5512-X through ASA 5555-X Management interface.

This command is not supported on the ASA Services Module.

priority-queue *interface-name*

no priority queue *interface-name*

Syntax Description

interface-name	Specifies the name of the physical interface on which you want to enable the priority queue, or for the ASA 5505 or ASASM, the name of the VLAN interface.

Defaults

By default, priority queuing is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.2(3)/8.4(1)	Support for Ten Gigabit Ethernet interfaces was added for the ASA 5585-X.

Usage Guidelines

LLQ priority queueing lets you prioritize certain traffic flows (such as latency-sensitive traffic like voice and video) ahead of other traffic.

The ASA supports two types of priority queueing:

- Standard priority queueing—Standard priority queueing uses an LLQ priority queue on an interface that yopu create using the **priority-queue** command, while all other traffic goes into the "best effort" queue. Because queues are not of infinite size, they can fill and overflow. When a queue is full, any additional packets cannot get into the queue and are dropped. This is called *tail drop*. To avoid having the queue fill up, you can increase the queue buffer size (the **queue-limit** command).

You can also fine-tune the maximum number of packets allowed into the transmit queue (the **tx-ring-limit** command). These options let you control the latency and robustness of the priority queuing. Packets in the LLQ queue are always transmitted before packets in the best effort queue.

- Hierarchical priority queueing—Hierarchical priority queueing is used on interfaces on which you enable a traffic shaping queue. A subset of the shaped traffic can be prioritized. The standard priority queue is not used.

Note On the ASA 5505 only, configuring a priority queue on one interface overwrites the same configuration on all other interfaces; only the last applied configuration is present on all interfaces. Also, if the priority queue configuration is removed from one interface, it is removed from all interfaces. To work around this issue, configure the **priority-queue** command on only one interface. If different interfaces need different settings for the **queue-limit** and/or **tx-ring-limit** commands, use the largest of all queue limits and smallest of all tx-ring-limits on any one interface (CSCsi13132).

Examples

The following example configures a priority queue for the interface named test, specifying a queue limit of 30,000 packets and a transmit queue limit of 256 packets.

```
hostname(config)# priority-queue test
hostname(priority-queue)# queue-limit 30000
hostname(priority-queue)# tx-ring-limit 256
hostname(priority-queue)#
```

Related Commands

Command	Description
queue-limit	Specifies the maximum number of packets that can be enqueued to a priority queue before it drops data.
tx-ring-limit	Sets the maximum number of packets that can be queued at any given time in the Ethernet transmit driver.
policy-map	Configures a policy; that is, an association of a traffic class and one or more actions.
clear configure priority-queue	Removes the current priority queue configuration.
show running-config [all] priority-queue	Shows the current priority queue configuration. If you specify the **all** keyword, this command displays all the current priority queue, queue-limit, and tx-ring-limit configuration values.

privilege

To configure command privilege levels for use with command authorization (local, RADIUS, and LDAP (mapped) only), use the **privilege** command in global configuration mode. To disallow the configuration, use the **no** form of this command.

privilege [**show | clear | configure**] **level** *level* [**mode** {**enable | configure**}] **command** *command*

no privilege [**show | clear | configure**] **level** *level* [**mode** {**enable | configure**}] **command** *command*

Syntax Description

clear	(Optional) Sets the privilege only for the clear form of the command. If you do not use the **clear**, **show**, or **configure** keywords, all forms of the command are affected.
command *command*	Specifies the command you are configuring. You can only configure the privilege level of the *main* command. For example, you can configure the level of all **aaa** commands, but not the level of the **aaa authentication** command and the **aaa authorization** command separately. Also, you cannot configure the privilege level of subcommands separately from the main command. For example, you can configure the **context** command, but not the **allocate-interface** command, which inherits the settings from the **context** command.
configure	(Optional) Sets the privilege only for the configure form of the command. The configure form of the command is typically the form that causes a configuration change, either as the unmodified command (without the **show** or **clear** prefix) or as the **no** form. If you do not use the **clear**, **show**, or **configure** keywords, all forms of the command are affected.
level *level*	Specifies the privilege level; valid values are from 0 to 15. Lower privilege level numbers are lower privilege levels.
mode enable	(Optional) If a command can be entered in user EXEC/privileged EXEC mode as well as configuration mode, and the command performs different actions in each mode, you can set the privilege level for these modes separately. The **mode enable** keyword specifies both user EXEC mode and privileged EXEC mode.
mode configure	(Optional) If a command can be entered in user EXEC/privileged EXEC mode as well as configuration mode, and the command performs different actions in each mode, you can set the privilege level for these modes separately. The mode **configure** keyword specifies configuration mode, accessed using the **configure terminal** command.
show	(Optional) Sets the privilege only for the show form of the command. If you do not use the **clear**, **show**, or **configure** keywords, all forms of the command are affected.

Defaults

By default, the following commands are assigned to privilege level 0. All other commands are at level 15.

- **show checksum**
- **show curpriv**

- **enable**
- **help**
- **show history**
- **login**
- **logout**
- **pager**
- **show pager**
- **clear pager**
- **quit**
- **show version**

If you move any configure mode commands to a lower level than 15, be sure to move the **configure** command to that level as well, otherwise, the user will not be able to enter configuration mode.

To view all privilege levels, see the **show running-config all privilege all** command.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.0(2)	Support for RADIUS users with Cisco VSA CVPN3000-Privilege-Level was added. LDAP users are supported if you map the LDAP attribute to the CVPN3000-Privilege-Level using the **ldap map-attributes** command.

Usage Guidelines

The **privilege** command lets you set privilege levels for ASA commands when you configure the **aaa authorization command LOCAL** command. Even though the command uses the **LOCAL** keyword, this keyword enables local, RADIUS, and LDAP (mapped) authorization.

Examples

For example, the **filter** command has the following forms:

- **filter** (represented by the **configure** option)
- **show running-config filter**
- **clear configure filter**

You can set the privilege level separately for each form, or set the same privilege level for all forms by omitting this option. For example, set each form separately as follows:

```
hostname(config)# privilege show level 5 command filter
hostname(config)# privilege clear level 10 command filter
hostname(config)# privilege cmd level 10 command filter
```

Alternatively, you can set all filter commands to the same level:

```
hostname(config)# privilege level 5 command filter
```

The **show privilege** command separates the forms in the display.

The following example shows the use of the **mode** keyword. The **enable** command must be entered from user EXEC mode, while the **enable password** command, which is accessible in configuration mode, requires the highest privilege level.

```
hostname(config)# privilege cmd level 0 mode enable command enable
hostname(config)# privilege cmd level 15 mode cmd command enable
hostname(config)# privilege show level 15 mode cmd command enable
```

The following example shows an additional command, the **configure** command, which uses the **mode** keyword:

```
hostname(config)# privilege show level 5 mode cmd command configure
hostname(config)# privilege clear level 15 mode cmd command configure
hostname(config)# privilege cmd level 15 mode cmd command configure
hostname(config)# privilege cmd level 15 mode enable command configure
```

Note This last line is for the **configure terminal** command.

Related Commands

Command	Description
clear configure privilege	Removes privilege command statements from the configuration.
show curpriv	Displays current privilege level.
show running-config privilege	Displays privilege levels for commands.

prompt

To customize the CLI prompt, use the **prompt** command in global configuration mode. To revert to the default prompt, use the **no** form of this command.

prompt {[**hostname**] [**context**] [**domain**] [**slot**] [**state**] [**priority**] [**cluster-unit**]}

no prompt [**hostname**] [**context**] [**domain**] [**slot**] [**state**] [**priority**] [**cluster-unit**]

Syntax Description

cluster-unit	Displays the cluster unit name. Each unit in a cluster can have a unique name.
context	(Multiple mode only) Displays the current context.
domain	Displays the domain name.
hostname	Displays the hostname.
priority	Displays the failover priority as pri (primary) or sec (secondary). Set the priority using the **failover lan unit** command.
state	Displays the traffic-passing state or role of the unit. For failover, the following values are displayed for the **state** keyword: • act—Failover is enabled, and the unit is actively passing traffic. • stby— Failover is enabled, and the unit is not passing traffic and is in a standby, failed, or other non-active state. • actNoFailover—Failover is not enabled, and the unit is actively passing traffic. • stbyNoFailover—Failover is not enabled, and the unit is not passing traffic. This might happen when there is an interface failure above the threshold on the standby unit. For clustering, the following values are displayed for the **state** keyword: • master • slave For example, if you set **prompt hostname cluster-unit state**, then in the prompt "ciscoasa/cl2/slave>", the hostname is ciscoasa, the unit name is cl2, and the state name is slave.

Defaults

The default prompt is the hostname. In multiple context mode, the hostname is followed by the current context name (*hostname*/*context*).

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.2(1)	This command was introduced.
9.0(1)	The **cluster-unit** option was added. The **state** keyword was updated for clustering.

Usage Guidelines

The order in which you enter the keywords determines the order of the elements in the prompt, which are separated by a slash (/).

In multiple context mode, you can view the extended prompt when you log in to the system execution space or the admin context. Within a non-admin context, you only see the default prompt, which is the hostname and the context name.

The ability to add information to a prompt allows you to see at-a-glance which ASA you are logged into when you have multiple modules. During a failover, this feature is useful when both ASAs have the same hostname.

Examples

The following example shows all available elements in the prompt available for failover:

```
hostname(config)# prompt hostname context slot state priority
```

The prompt changes to the following string:

```
hostname/admin/pri/act(config)#
```

Related Commands

Command	Description
clear configure prompt	Clears the configured prompt.
show running-config prompt	Displays the configured prompt.

protocol

To specify the protocol and encryption types for an IPsec proposal for IKEv2 connections, use the **protocol** command from IPsec proposal configuration mode. To remove the protocol and encryption types, use the **no** form of the command:

protocol esp {**encryption** {**des | 3des | aes | aes-192 | aes-256 | aes-gcm | aes-gcm-192 | aes-gcm-256 | aes-gmac | aes-gmac-192 | aes-gmac-256 | null**} | **integrity** {**md5 | sha-1 | sha-256 | sha-384 | sha-512 | null**}

no protocol esp {**encryption** {**des | 3des | aes | aes-192 | aes-256 | | aes-gcm | aes-gcm-192 | aes-gcm-256 | aes-gmac | aes-gmac-192 | aes-gmac-256 | null**} | **integrity** {**md5 | sha-1 | sha-256 | sha-384 | sha-512 | null**}

Syntax Description

esp	Specifies the Encapsulating Security Payload (ESP) IPsec protocol (currently the only supported protocol for IPsec).
des	Specifies 56-bit DES-CBC encryption for ESP.
3des	(Default) Specifies the triple DES encryption algorithm for ESP.
aes	Specifies AES with a 128-bit key encryption for ESP.
aes-192	Specifies AES with a 192-bit key encryption for ESP.
aes-256	Specifies AES with a 256-bit key encryption for ESP.
aes-gcm	Specifies which AES-GCM or AES-GMAC algorithm to use.
aes-gcm-192	Specifies which AES-GCM or AES-GMAC algorithm to use.
aes-gcm-256	Specifies which AES-GCM or AES-GMAC algorithm to use.
aes-gmac	Specifies which AES-GCM or AES-GMAC algorithm to use.
aes-gmac-192	Specifies which AES-GCM or AES-GMAC algorithm to use.
aes-gmac-256	Specifies which AES-GCM or AES-GMAC algorithm to use.
null	Does not use encryption for ESP.
integrity	Specifies the integrity algorithm for the IPsec protocol.
md5	Specifies the md5 algorithm for the ESP integrity protection.
sha-1	(Default) Specifies the Secure Hash Algorithm (SHA) SHA-1, defined in the U.S. Federal Information Processing Standard (FIPS), for ESP integrity protection.
sha-256	Specifies which algorithm to use as an IPsec integrity algorithm.
sha-384	Specifies which algorithm to use as an IPsec integrity algorithm.
sha-512	Specifies which algorithm to use as an IPsec integrity algorithm.
null	Choose if AES-GCM/GMAC is configured as the encryption algorithm.

Defaults

The default settings for an IPsec proposal are the encryption type 3DES and the integrity type SHA-1.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
IPsec proposal configuration	•	•	•	—	—

Command History

Release	Modification
8.4(1)	This command was introduced.
9.0(1)	Added AES-GCM or AES-GMAC algorithm support. Added ability to choose an algorithm to use as an IPsec integrity algorithm.

Usage Guidelines

IKEv2 IPsec proposals can have multiple encryption and integrity types. Use this command to specify the types, which allows the peer to pick and choose as desired.

You must choose the null integrity algorithm if AES-GMC/GMAC is configured as the encryption algorithm.

Examples

The following example creates the IPsec proposal *proposal_1*, configures the ESP encryption types DES and 3DES, and specifies the crypto algorithms MD5 and SHA-1 for integrity protection:

```
hostname(config)# crypto ipsec ikev2 ipsec-proposal proposal_1
hostname(config-ipsec-proposal)# protocol ESP encryption des 3des
hostname(config-ipsec-proposal)# protocol ESP integrity md5 sha-1
```

Related Commands

Command	Description
crypto ikev2 enable	Enables ISAKMP IKEv2 negotiation on the interface on which the IPsec peer communicates.
crypto ipsec ikev2 ipsec-proposal	Creates an IPsec proposal and enters IPsec proposal configuration mode where you specify multiple encryption and integrity types for the proposal.
show running-config ipsec	Displays the configuration of all transform sets.
crypto map set transform-set	Specifies the transform sets to use in a crypto map entry.
crypto dynamic-map set transform-set	Specifies the transform sets to use in a dynamic crypto map entry.
show running-config crypto map	Displays the crypto map configuration.
show running-config crypto dynamic-map	Displays the dynamic crypto map configuration.

protocol-enforcement

To enable the domain name, label length, and format check, including compression and looped pointer check, use the **protocol-enforcement** command in parameters configuration mode. To disable protocol enforcement, use the **no** form of this command.

protocol-enforcement

no protocol-enforcement

Syntax Description

This command has no arguments or keywords.

Defaults

Protocol enforcement is enabled by default. This feature can be enabled when **inspect dns** is configured even if a **policy-map type inspect dns** is not defined. To disable, **no protocol-enforcement** must explicitly be stated in the policy map configuration. If **inspect dns** is not configured, NAT rewrite is not performed.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

Under certain conditions, protocol enforcement is performed even if the command is disabled. This occurs when parsing a DNS resource record is required for other purposes, such as DNS resource record classification, NAT or TSIG check.

Examples

The following example shows how to enable protocol enforcement in a DNS inspection policy map:

```
hostname(config)# policy-map type inspect dns preset_dns_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# protocol-enforcement
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

protocol http

To specify HTTP as a permitted distribution point protocol for retrieving a CRL, use the **protocol http** command in ca-crl configuration mode. To remove HTTP as the permitted method of CRL retrieval, use the **no** form of this command.

protocol http

no protocol http

Syntax Description

This command has no arguments or keywords.

Defaults

The default setting is to permit HTTP.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ca-crl configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

If you use this command, be sure to assign HTTP rules to the public interface filter. Subject to permission, the content of the CRL distribution point determines the retrieval method (HTTP, LDAP, and/or SCEP).

Examples

The following example enters ca-crl configuration mode, and permits HTTP as a distribution point protocol for retrieving a CRL for trustpoint central:

```
hostname(configure)# crypto ca trustpoint central
hostname(ca-trustpoint)# crl configure
hostname(ca-crl)# protocol http
```

Related Commands

Command	Description
crl configure	Enters ca-crl configuration mode.
crypto ca trustpoint	Enters trustpoint configuration mode.

Command	Description
protocol ldap	Specifies LDAP as a retrieval method for CRLs.
protocol scep	Specifies SCEP as a retrieval method for CRLs.

protocol ldap

To specify LDAP as a distribution point protocol for retrieving a CRL, use the **protocol ldap** command in ca-crl configuration mode. Subject to permission, the content of the CRL distribution point determines the retrieval method (HTTP, LDAP, and/or SCEP).

To remove the LDAP protocol as the permitted method of CRL retrieval, use the **no** form of this command.

protocol ldap

no protocol ldap

Syntax Description

This command has no arguments or keywords.

Defaults

The default setting is to permit LDAP.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
crl configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example enters ca-crl configuration mode, and permits LDAP as a distribution point protocol for retrieving a CRL for trustpoint central:

```
hostname(configure)# crypto ca trustpoint central
hostname(ca-trustpoint)# crl configure
hostname(ca-crl)# protocol ldap
```

Related Commands

Command	Description
crl configure	Enters ca-crl configuration mode.
crypto ca trustpoint	Enters trustpoint configuration mode.
protocol http	Specifies HTTP as a retrieval method for CRLs
protocol scep	Specifies SCEP as a retrieval method for CRLs

protocol scep

To specify SCEP as a distribution point protocol for retrieving a CRL, use the **protocol scep** command in crl configure mode. Subject to permission, the content of the CRL distribution point determines the retrieval method (HTTP, LDAP, and/or SCEP).

To remove the SCEP protocol as the permitted method of CRL retrieval, use the **no** form of this command.

protocol scep

no protocol scep

Syntax Description

This command has no arguments or keywords.

Defaults

The default setting is to permit SCEP.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Crl configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example enters ca-crl configuration mode, and permits SCEP as a distribution point protocol for retrieving a CRL for trustpoint central:

```
hostname(configure)# crypto ca trustpoint central
hostname(ca-trustpoint)# crl configure
hostname(ca-crl)# protocol scep
hostname(ca-crl)#
```

Related Commands

Command	Description
crl configure	Enters ca-crl configuration mode.
crypto ca trustpoint	Enters trustpoint configuration mode.
protocol http	Specifies HTTP as a retrieval method for CRLs
protocol ldap	Specifies LDAP as a retrieval method for CRLs

protocol-object

To add a protocol object to a protocol object group, use the **protocol-object** command in protocol configuration mode. To remove port objects, use the **no** form of this command.

protocol-object *protocol*

no protocol-object *protocol*

Syntax Description

protocol	Protocol name or number.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Protocol configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **protocol-object** command is used with the **object-group** command to define a protocol object in protocol configuration mode.

You can specify an IP protocol name or number using the *protocol* argument. The udp protocol number is 17, the tcp protocol number is 6, and the egp protocol number is 47.

Examples

The following example shows how to define protocol objects:

```
hostname(config)# object-group protocol proto_grp_1
hostname(config-protocol)# protocol-object udp
hostname(config-protocol)# protocol-object tcp
hostname(config-protocol)# exit
hostname(config)# object-group protocol proto_grp
hostname(config-protocol)# protocol-object tcp
hostname(config-protocol)# group-object proto_grp_1
hostname(config-protocol)# exit
hostname(config)#
```

Related Commands

Command	Description
clear configure object-group	Removes all the **object group** commands from the configuration.
group-object	Adds network object groups.
network-object	Adds a network object to a network object group.
object-group	Defines object groups to optimize your configuration.
show running-config object-group	Displays the current object groups.

protocol-violation

To define actions when a protocol violation occurs with HTTP and NetBIOS inspection, use the **protocol-violation** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

protocol-violation action [**drop** [**log**] | **log**]

no protocol-violation action [**drop** [**log**] | **log**]

Syntax Description

drop	Specifies to drop packets that do not conform to the protocol.
log	Specifies to log the protocol violations.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command can be configured in an HTTP or NetBIOS policy map. A syslog is issued when the HTTP or NetBIOS parser cannot detect a valid HTTP or NetBIOS message in the first few bytes of the message. This occurs, for instance, when a chunked encoding is malformed and the message cannot be parsed.

Examples

The following example shows how to set up an action for protocol violation in a policy map:

```
hostname(config)# policy-map type inspect http http_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# protocol-violation action drop
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.

Command	Description
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

proxy-auth

To flag the tunnel group as a specific proxy authentication tunnel group, use the **proxy-auth** command in webvpn configuration mode.

proxy-auth [**sdi**]

Syntax Description

sdi	Parses RADIUS/TACACS SDI proxy messages into native SDI directives.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

Use the **proxy-auth** command for enabling the parsing of aaa-server proxy authentication text messages into native protocol directives.

proxy-auth_map sdi

To map RADIUS challenge messages returned from a RADIUS proxy server to native SDI messages, use the **proxy-auth_map sdi** command in aaa-server configuration mode.

proxy-auth_map sdi [**sdi_message**] [**radius_challenge_message**]

Syntax Description

radius_challenge_message	Specifies the RADIUS challenge messages that are used to map specific SDI messages, which can any of the following: • new-pin-meth—New PIN Method, [default] Do you want to enter your own pin • new-pin-reenter—Reenter new PIN, [default] Reenter PIN: • new-pin-req—New PIN requested, [default] Enter your new Alpha-Numerical PIN • new-pin-sup—New PIN supplied, [default] Please remember your new PIN • new-pin-sys-ok—New PIN accepted, [default] New PIN Accepted • next-ccode-and-reauth—Reauthenticate on token change, [default] new PIN with the next card code • next-code—Provide the tokencode without PIN, [default] Enter Next PASSCODE • ready-for-sys-pin—Accept system generated PIN, [default] ACCEPT A SYSTEM GENERATED PIN
sdi_message	Specifies the native SDI messages.

Defaults

The default mapping on the ASA corresponds to default settings on the Cisco ACS (including the system administration, configuration, and RSA SecureID prompts), which also synchronizes with default settings on the RSA Authentication Manager.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Aaa-server configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

To enable parsing and mapping of RADIUS challenge messages from a RADIUS proxy, you must enable the **proxy-auth** command in tunnel-group configuration mode. Then default mapping values are used. You can change the default mapping values using the **proxy-auth_map** command.

A remote user connects to the ASA with the AnyConnect client and tries to authenticate using an RSA SecurID token. The ASA can be configured to use a RADIUS proxy server which in turn, communicates with the SDI server about that authentication.

During authentication, the RADIUS server presents access challenge messages to the ASA. Within these challenge messages are reply messages containing text from the SDI server. The message text is different when the ASA is communicating directly with an SDI server than when the ASA is communicating through the RADIUS proxy.

Therefore, to appear as a native SDI server to the AnyConnect client, the ASA must interpret the messages from the RADIUS server. Also, because the SDI messages are configurable on the SDI server, the message text on the ASA must match (in whole or in part) the message text on the SDI server. Otherwise, the prompts displayed to the remote client user may not be appropriate for the action required during authentication. The AnyConnect client might fail to respond, and authentication might fail.

Related Commands

Command	Description
proxy-auth	Enables parsing and mapping of RADIUS challenge messages from a RADIUS proxy.

proxy-bypass

To configure the ASA to perform minimal content rewriting, and to specify the types of content to rewrite—external links and/or XML—use the **proxy-bypass** command in webvpn configuration mode. To disable proxy bypass, use the **no** form of the command.

proxy-bypass interface *interface name* **{port** *port number***| path-mask** *path mask***} target** *url* **[rewrite {link | xml | none}]**

no proxy-bypass interface *interface name* **{port** *port number***| path-mask** *path mask***} target** *url* **[rewrite {link | xml | none}]**

Syntax Description

host	Identifies the host to forward traffic to. Use either the host IP address or a hostname.
interface	Identifies the ASA interface for proxy bypass.
interface name	Specifies an ASA interface by name.
link	Specifies rewriting of absolute external links.
none	Specifies no rewriting.
path-mask	Specifies the pattern to match.
path-mask	Specifies a pattern to match that can contain a regular expression. You can use the following wildcards: * — Matches everything. You cannot use this wildcard by itself. It must accompany an alphanumeric string. ? —Matches any single character. [!seq] — Matches any character not in sequence. [seq] — Matches any character in sequence. Maximum 128 bytes.
port	Identifies the port reserved for proxy bypass.
port number	Specifies a high numbered port reserved for proxy bypass. The port range is 20000-21000. You can use a port for one proxy bypass rule only.
rewrite	(Optional) Specifies the additional rules for rewriting: none or a combination of XML and links.
target	Identifies the remote server to forward the traffic to.
url	Enter the URL in the format **http(s)://***fully_qualified_domain_name*[:*port*]. Maximum 128 bytes. The port for HTTP is 80 and for HTTPS it is 443, unless you specify another port.
xml	Specifies rewriting XML content.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
WebVPN configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

Use proxy bypass for applications and web resources that work better with minimum content rewriting. The proxy-bypass command determines how to treat specific web applications that travel through the ASA.

You can use this command multiple times. The order in which you configure entries is unimportant. The interface and path mask or interface and port uniquely identify a proxy bypass rule.

If you configure proxy bypass using ports rather than path masks, depending on your network configuration, you might need to change your firewall configuration to allow these ports access to the ASA. Use path masks to avoid this restriction. Be aware, however, that path masks can change, so you might need to use multiple pathmask statements to exhaust the possibilities.

A path is everything in a URL after the .com or .org or other types of domain name. For example, in the URL www.example.com/hrbenefits, *hrbenefits* is the path. Similarly, for the URL www.example.com/hrinsurance, *hrinsurance* is the path. If you want to use proxy bypass for all hr sites, you can avoid using the command multiple times by using the * wildcard as follows: /hr*.

Examples

The following example shows how to configure the ASA to use port 20001 for proxy bypass over the webvpn interface, using HTTP and its default port 80, to forward traffic to example.com and to rewrite XML content.

```
hostname(config)# webvpn
hostname(config-webvpn)# proxy-bypass interface webvpn port 20001 target
http://example.com rewrite xml
```

The next example shows how to configure the ASA to use the path mask mypath/* for proxy bypass on the outside interface, using HTTP and its default port 443 to forward traffic to example.com, and to rewrite XML and link content.

```
hostname(config)# webvpn
hostname(config-webvpn)# proxy-bypass interface outside path-mask /mypath/* target
https://example.com rewrite xml,link
```

Related Commands

Command	Description
apcf	Specifies nonstandard rules to use for a particular application.
rewrite	Determines whether traffic travels through the ASA.

proxy-ldc-issuer

To issue TLS proxy local dynamic certificates, use the **proxy-ldc-issuer** command in crypto ca trustpoint configuration mode. To remove the configuration, use the **no** form of this command.

proxy-ldc-issuer

no proxy-ldc-issuer

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Crypto ca trustpoint configuration	•	•	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Use the **proxy-ldc-issuer** command to issue TLS proxy local dynamic certificates. The **proxy-ldc-issuer** command grants a crypto trustpoint the role as local CA to issue the LDC and can be accessed from crypto ca trustpoint configuration mode.

The **proxy-ldc-issuer** command defines the local CA role for the trustpoint to issue dynamic certificates for TLS proxy. This command can only be configured under a trustpoint with “enrollment self.”

Examples

The following example shows how to create an internal local CA to sign the LDC for phones. This local CA is created as a regular self-signed trustpoint with **proxy-ldc-issuer** enabled.

```
hostname(config)# crypto ca trustpoint ldc_server
hostname(config-ca-trustpoint)# enrollment self
hostname(config-ca-trustpoint)# proxy-ldc-issuer
hostname(config-ca-trustpoint)# fqdn my _ldc_ca.example.com
hostname(config-ca-trustpoint)# subject-name cn=FW_LDC_SIGNER_172_23_45_200
hostname(config-ca-trustpoint)# keypair ldc_signer_key
hostname(config)# crypto ca enroll ldc_server
```

Related Commands

Commands	Description
ctl-provider	Defines a CTL provider instance and enters provider configuration mode.
server trust-point	Specifies the proxy trustpoint certificate to be presented during the TLS handshake.
show tls-proxy	Shows the TLS proxies.
tls-proxy	Defines a TLS proxy instance and sets the maximum sessions.

proxy-server

To configure an HTTP proxy for the Phone Proxy feature that is written into the IP phone's configuration file under the <proxyServerURL> tag, use the **proxy-server** command in phone-proxy configuration mode. To remove the HTTP proxy configuration from the Phone Proxy, use the **no** form of this command.

proxy-server address *ip_address* [*listen_port*] **interface** *ifc*

no proxy-server address *ip_address* [*listen_port*] **interface** *ifc*

Syntax Description

interface *ifc*	Specifies the interface on which the HTTP proxy resides on the ASA.
ip_address	Specifies the IP address of the HTTP proxy.
listen_port	Specifies the listening port of the HTTP proxy. If not specified, the default will be 8080.

Defaults

If the listen port is not specified, the port is configured to be 8080 by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Phone-proxy configuration	•	—	•	—	—

Command History

Release	Modification
8.0(4)	The command was introduced.

Usage Guidelines

Setting the proxy server configuration option for the Phone Proxy allows for an HTTP proxy on the DMZ or external network in which all the IP phone URLs are directed to the proxy server for services on the phones. This setting accommodates nonsecure HTTP traffic, which is not allowed back into the corporate network.

The *ip_address* you enter should be the global IP address based on where the IP phone and HTTP proxy server is located.

If the proxy server is located in a DMZ and the IP phones are located outside the network, the ASA does a lookup to see if there is a NAT rule and uses the global IP address to write into the configuration file.

You can enter a hostname in the *ip_address* argument when that hostname can be resolved to an IP address by the ASA (for example, DNS lookup is configured) because the ASA will resolve the hostname to an IP address.

By default, the Phone URL Parameters configured under the Enterprise Parameters use an FQDN in the URLs. The parameters might need to be changed to use an IP address if the DNS lookup for the HTTP proxy does not resolve the FQDNs.

To make sure the proxy server URL was written correctly to the IP phones configuration files, check the URL on an IP phone under Settings > Device Configuration > HTTP configuration >Proxy Server URL.

The Phone Proxy does not inspect this HTTP traffic to the proxy server.

If the ASA is in the path of the IP phone and the HTTP proxy server, use existing debugging techniques (such as syslogs and captures) to troubleshoot the proxy server.

You can configure only one proxy server while the Phone Proxy is in use; however, if the IP phones have already downloaded their configuration files after you have configured the proxy server, you must restart the IP phones so that they get the configuration file with the proxy server's address in the file.

Examples

The following example shows the use of the **proxy-server** command to configure the HTTP proxy server for the Phone Proxy:

```
hostname(config-phone-proxy)# proxy-server 192.168.1.2 interface inside
```

Related Commands

Command	Description
phone-proxy	Configures the Phone Proxy instance.

publish-crl

To allow other ASAs to validate the revocation status of certificates issued by the local CA, use the **publish-crl** command in ca-server configuration mode to allow downloading of the CRL directly from and interface on the ASA. To make the CRL unavailable for downloading, use the **no** form of this command.

[**no**] **publish-crl interface** *interface* [**port** *portnumber*]

Syntax Description

interface *interface*	Specifies the *nameif* used for the interface, such as **gigabitethernet0/1**. See the **interface** command for details.
port *portnumber*	(Optional) Specifies the port on which the interface device expects to download the CRL. Port numbers can be in the range of 1-65535.

Defaults

The default **publish-crl** status is **no publish**. TCP port 80 is the default for HTTP.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ca-server configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

The CRL is inaccessible by default. You must enable access to the CRL file on the interface and port required.

TCP port 80 is the HTTP default port number. If you configure a non-default port (other than port 80), be sure the **cdp-url** configuration includes the new port number so other devices know to access this specific port.

The CRL Distribution Point (CDP) is the location of the CRL on the local CA ASA. The URL you configure with the **cdp-url** command is embedded into any issued certificates. If you do not configure a specific location for the CDP, the default CDP URL is: http://hostname.domain/+CSCOCA+/asa_ca.crl.

An HTTP redirect and a CRL download request are handled by the same HTTP listener, if Clientless SSL VPN is enabled on the same interface. The listener checks for the incoming URL and if it matches the one configured with the **cdp-url** command, the CRL file downloads. If the URL does not match the **cdp-url** command, the connection is redirected to HTTPS (if HTTP redirect is enabled).

Examples

The **publish-crl** command example, entered in ca-server configuration mode, enables port 70 of the outside interface for CRL download:

```
hostname(config)# crypto ca server
hostname (config-ca-server)#publish-crl outside 70
hostname(config-ca-server)#
```

Related Commands

Command	Description
cdp-url	Specifies a particular location for the automatically generated CRL.
show interface	Displays the runtime status and statistics of interfaces.

pwd

To display the current working directory, use the **pwd** command in privileged EXEC mode.

pwd

Syntax Description

This command has no arguments or keywords.

Defaults

The root directory (/) is the default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0	This command was introduced.

Usage Guidelines

This command is similar in functionality to the **dir** command.

Examples

The following example shows how to display the current working directory:

```
hostname# pwd
disk0:/
hostname# pwd
flash:
```

Related Commands

Command	Description
cd	Changes the current working directory to the one specified.
dir	Displays the directory contents.
more	Displays the contents of a file.

CHAPTER 41

queue-limit through reset Commands

queue-limit (priority-queue)

To specify the depth of the priority queues, use the **queue-limit** command in priority-queue configuration mode. To remove this specification, use the **no** form of this command.

Note This command is not supported on ASA 5580 Ten Gigabit Ethernet interfaces. (Ten Gigabit Ethernet interfaces are supported for priority queues on the ASA 5585-X.) This command is also not supported for the ASA 5512-X through ASA 5555-X Management interface.

This command is not supported on the ASA Services Module.

queue-limit *number-of-packets*

no queue-limit *number-of-packets*

Syntax Description

number-of-packets	Specifies the maximum number of low-latency or normal priority packets that can be queued (that is, buffered) before the interface begins dropping packets. The upper limit of the range of values is determined dynamically at run time. To view this limit, enter **help** or **?** on the command line. The key determinant is the memory needed to support the queues and the memory available on the device. The queues must not exceed the available memory. The theoretical maximum number of packets is 2147483647.

Defaults

The default queue limit is 1024 packets.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Priority-queue configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The ASA allows two classes of traffic: low-latency queuing (LLQ) for higher priority, latency sensitive traffic (such as voice and video) and best-effort, the default, for all other traffic. The ASA recognizes priority traffic and enforces appropriate quality of service (QoS) policies. You can configure the size and depth of the priority queue to fine-tune the traffic flow.

Note You *must* configure the **priority-queue** command in order to enable priority queueing for the interface.

You can apply one **priority-queue** command to any interface that can be defined by the **nameif** command.

The **priority-queue** command enters priority-queue configuration mode, as shown by the prompt. In priority-queue configuration mode, you can configure the maximum number of packets allowed in the transmit queue at any given time (**tx-ring-limit** command) and the number of packets of either type (priority or best -effort) allowed to be buffered before dropping packets (**queue-limit** command).

The tx-ring-limit and the queue-limit that you specify affect both the higher priority low-latency queue and the best-effort queue. The tx-ring-limit is the number of either type of packets allowed into the driver before the driver pushes back to the queues sitting in front of the interface to let them buffer packets until the congestion clears. In general, you can adjust these two parameters to optimize the flow of low-latency traffic.

Because queues are not of infinite size, they can fill and overflow. When a queue is full, any additional packets cannot get into the queue and are dropped. This is *tail drop*. To avoid having the queue fill up, you can use the **queue-limit** command to increase the queue buffer size.

Examples

The following example configures a priority queue for the interface named test, specifying a queue limit of 234 packets and a transmit queue limit of 3 packets.

```
hostname(config)# priority-queue test
hostname(priority-queue)# queue-limit 234
hostname(priority-queue)# tx-ring-limit 3
```

Related Commands

Command	Description
clear configure priority-queue	Removes the current priority queue configuration on the named interface.
priority-queue	Configures priority queuing on an interface.
show priority-queue statistics	Shows the priority-queue statistics for the named interface.
show running-config [all] priority-queue	Shows the current priority queue configuration. If you specify the **all** keyword, this command displays all the current priority queue, queue-limit, and tx-ring-limit configuration values.
tx-ring-limit	Sets the maximum number of packets that can be queued at any given time in the Ethernet transmit driver.

queue-limit (tcp-map)

To configure the maximum number of out-of-order packets that can be buffered and put in order for a TCP connection, use the **queue-limit** command in tcp-map configuration mode. To set the value back to the default, use the **no** form of this command. This command is part of the TCP normalization policy enabled using the **set connection advanced-options** command.

queue-limit *pkt_num* [**timeout** *seconds*]

no queue-limit

Syntax Description

pkt_num	Specifies the maximum number of out-of-order packets that can be buffered and put in order for a TCP connection, between 1 and 250. The default is 0, which means this setting is disabled and the default system queue limit is used depending on the type of traffic. See the "Usage Guidelines" section for more information.
timeout *seconds*	(Optional) Sets the maximum amount of time that out-of-order packets can remain in the buffer, between 1 and 20 seconds. The default is 4 seconds. If packets are not put in order and passed on within the timeout period, then they are dropped. You cannot change the timeout for any traffic if the *pkt_num* argument is set to 0; you need to set the limit to be 1 or above for the **timeout** keyword to take effect.

Defaults

The default setting is 0, which means this command is disabled.

The default timeout is 4 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tcp-map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(4)/8.0(4)	The **timeout** keyword was added.

Usage Guidelines

To enable TCP normalization, use the Modular Policy Framework:

1. **tcp-map**—Identifies the TCP normalization actions.
   a. **queue-limit**—In tcp-map configuration mode, you can enter the **queue-limit** command and many others.

2. **class-map**—Identify the traffic on which you want to perform TCP normalization.
3. **policy-map**—Identify the actions associated with each class map.
   a. **class**—Identify the class map on which you want to perform actions.
   b. **set connection advanced-options**—Identify the tcp-map you created.
4. **service-policy**—Assigns the policy map to an interface or globally.

If you do not enable TCP normalization, or if the **queue-limit** command is set to the default of 0, which means it is disabled, then the default system queue limit is used depending on the type of traffic:

- Connections for application inspection (the **inspect** command), IPS (the **ips** command), and TCP check-retransmission (the TCP map **check-retransmission** command) have a queue limit of 3 packets. If the ASA receives a TCP packet with a different window size, then the queue limit is dynamically changed to match the advertized setting.
- For other TCP connections, out-of-order packets are passed through untouched.

If you set the **queue-limit** command to be 1 or above, then the number of out-of-order packets allowed for all TCP traffic matches this setting. For example, for application inspection, IPS, and TCP check-retransmission traffic, any advertised settings from TCP packets are ignored in favor of the **queue-limit** setting. For other TCP traffic, out-of-order packets are now buffered and put in order instead of passed through untouched.

Examples

The following example sets the queue limit to 8 packets and the buffer timeout to 6 seconds for all Telnet connections:

```
hostname(config)# tcp-map tmap
hostname(config-tcp-map)# queue-limit 8 timeout 6
hostname(config)# class-map cmap
hostname(config-cmap)# match port tcp eq telnet
hostname(config)# policy-map pmap
hostname(config-pmap)# class cmap
hostname(config-pmap)# set connection advanced-options tmap
hostname(config)# service-policy pmap global
hostname(config)#
```

Related Commands

Command	Description
class-map	Identifies traffic for a service policy.
policy-map	dentifies actions to apply to traffic in a service policy.
set connection advanced-options	Enables TCP normalization.
service-policy	Applies a service policy to interface(s).
show running-config tcp-map	Shows the TCP map configuration.
tcp-map	Creates a TCP map and allows access to tcp-map configuration mode.

quit

To exit the current configuration mode, or to logout from privileged or user EXEC modes, use the **quit** command.

quit

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
User EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You can also use the key sequence **Ctrl Z** to exit global configuration (and higher) modes. This key sequence does not work with privileged or user EXEC modes.

When you enter the **quit** command in privileged or user EXEC modes, you log out from the ASA. Use the **disable** command to return to user EXEC mode from privileged EXEC mode.

Examples

The following example shows how to use the **quit** command to exit global configuration mode, and then logout from the session:

```
hostname(config)# quit
hostname# quit

Logoff
```

The following example shows how to use the **quit** command to exit global configuration mode, and then use the **disable** command to exit privileged EXEC mode:

```
hostname(config)# quit
hostname# disable
hostname>
```

Related Commands

Command	Description
exit	Exits a configuration mode or logs out from privileged or user EXEC modes.

quota management-session

To set the maximum number of simultaneous ASDM, SSH, and Telnet sessions that are allowed on the ASA, use the **quota management-session** command in global configuration mode. To set the quota to the default value, use the **no** form of this command.

quota management-session *number*

no quota management-session *number*

Syntax Description

number	Specifies the maximum number of simultaneous ASDM, SSH, and Telnet sessions that are allowed. Valid values are from 0 to 10,000.

Defaults

The default is 0, which means there is no session limit.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
9.1(2)	This command was introduced.

Usage Guidelines

When the quota is reached, subsequent management session requests are denied and a syslog message is generated. The console session is never blocked by the management session quota mechanism to prevent device lockout.

Examples

The following example configures the management session quota to 100:

```
hostname(config)# quota management-session 100
```

Related Commands

Command	Description
show run quota management-session	Displays the current value of the management-session quota.
show quota management-session	Displays statistics for management sessions.

radius-common-pw

To specify a common password to be used for all users who are accessing a RADIUS authorization server through the ASA, use the **radius-common-pw** command in aaa-server host configuration mode. To remove this specification, use the **no** form of this command.

radius-common-pw *string*

no radius-common-pw

Syntax Description

string	A case-sensitive, alphanumeric keyword of up to 127 characters to be used as a common password for all authorization transactions with the RADIUS server.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
aaa-server host	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command is valid only for RADIUS authorization servers.

The RADIUS authorization server requires a password and username for each connecting user. The ASA provides the username automatically. You enter the password here. The RADIUS server administrator must configure the RADIUS server to associate this password with each user authorizing to the server via this ASA. Be sure to provide this information to your RADIUS server administrator.

If you do not specify a common user password, each user password is the username. If you are using usernames for common user passwords, as a security precaution, do not use the RADIUS server for authorization anywhere else on your network.

Note The *string* argument is essentially a space-filler. The RADIUS server expects and requires it, but does not use it. Users do not need to know it.

Examples

The following example configures a RADIUS AAA server group named "svrgrp1" on host "1.2.3.4," sets the timeout interval to 9 seconds, sets the retry interval to 7 seconds, and configures the RADIUS commnon password as "allauthpw."

```
hostname(config)# aaa-server svrgrp1 protocol radius
hostname(config-aaa-server-group)# aaa-server svrgrp1 host 1.2.3.4
hostname(config-aaa-server-host)# timeout 9
hostname(config-aaa-server-host)# retry 7
hostname(config-aaa-server-host)# radius-common-pw allauthpw
hostname(config-aaa-server-host)# exit
hostname(config)#
```

Related Commands

Command	Description
aaa-server host	Enters aaa-server host configuration mode, so that you can configure AAA server parameters that are host-specific.
clear configure aaa-server	Removes all AAA command statements from the configuration.
show running-config aaa-server	Displays AAA server statistics for all AAA servers, for a particular server group, for a particular server within a particular group, or for a particular protocol.

radius-reject-message

To enable the display of a RADIUS reject message on the login screen when authentication is rejected, use the **radius-eject-message** command from tunnel-group webvpn attributes configuration mode. To remove the command from the configuration, use the **no** form of the command:

radius-reject-message

no radius-reject-message

Defaults

The default is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Tunnel-group webvpn configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Enable this command if you want to display to remote users a RADIUS message about an authentication failure.

Examples

The following example enables the display of a RADIUS rejection message for the connection profile named engineering:

```
hostname(config)# tunnel-group engineering webvpn-attributes
hostname(config-tunnel-webvpn)# radius-reject-message
```

radius-with-expiry (removed)

To have the ASA use MS-CHAPv2 to negotiate a password update with the user during authentication, use the **radius-with-expiry** command in tunnel-group ipsec-attributes configuration mode. To return to the default value, use the **no** form of this command.

radius-with-expiry

no radius-with-expiry

Syntax Description

This command has no arguments or keywords.

Defaults

The default setting for this command is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tunnel-group ipsec-attributes configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	This command was deprecated. The **password-management** command replaces it. The **no** form of the **radius-with-expiry** command is no longer supported.
8.0(2)	This command was deprecated.

Usage Guidelines

You can apply this attribute only to the IPSec remote-access tunnel-group type. The ASA ignores this command if RADIUS authentication has not been configured.

Examples

The following example entered in config-ipsec configuration mode, configures Radius with Expiry for the remote-access tunnel group named remotegrp:

```
hostname(config)# tunnel-group remotegrp type ipsec_ra
hostname(config)# tunnel-group remotegrp ipsec-attributes
hostname(config-tunnel-ipsec)# radius-with-expiry
```

Related Commands

Command	Description
clear configure tunnel-group	Clears all configured tunnel groups.
password-management	Enables password management. This command, in the tunnel-group general-attributes configuration mode, replaces the **radius-with-expiry** command.
show running-config tunnel-group	Shows the indicated certificate map entry.
tunnel-group ipsec-attributes	Configures the tunnel-group ipsec-attributes for this group.

range

To configure a range of addresses for a network object, use the **range** command in object configuration mode. Use the **no** form of this command to remove the object from the configuration.

range *ip_addr_1 ip_addr2*

no range *ip_addr_1 ip_addr2*

Syntax Description

ip_addr_1	Identifies the first IP address in the range, either IPv4 or IPv6.
ip_addr_2	Identifies the last IP address in the range.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Object network configuration	•	•	•	•	—

Command History

Release	Modification
8.3(1)	This command was introduced.
9.0(1)	We added support for IPv6 addresses.

Usage Guidelines

If you configure an existing network object with a different IP address, the new configuration will replace the existing configuration.

Examples

The following example shows how to create a range network object:

```
hostname (config)# object network OBJECT_RANGE
hostname (config-network-object)# range 10.1.1.1 10.1.1.8
```

Related Commands

Command	Description
clear configure object	Clears all objects created.
description	Adds a description to the network object.
fqdn	Specifies a fully-qualified domain name network object.
host	Specifies a host network object.

Command	Description
nat	Enables NAT for the network object.
object network	Creates a network object.
object-group network	Creates a network object group.
show running-config object network	Shows the network object configuration.
subnet	Specifies a subnet network object.

ras-rcf-pinholes

To enable call setup between H.323 endpoints when the Gatekeeper is inside the network, use the **ras-rcf-pinholes** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

ras-rcf-pinholes enable

no ras-rcf-pinholes enable

Syntax Description

enable	Enables call setup between H.323 endpoints.

Defaults

By default, this option is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
8.0(5)	This command was introduced.

Usage Guidelines

The ASA includes options to open pinholes for calls based on the RegistrationRequest/RegistrationConfirm (RRQ/RCF) messages. Because these RRQ/RCF messages are sent to and from the Gatekeeper, the calling endpoint's IP address is unknown and the ASA opens a pinhole through source IP address/port 0/0.

Examples

The following example shows how to set up an action in a policy map to open pinholes for these calls:

```
hostname(config)# policy-map type inspect h323 h323_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# ras-rcf-pinholes enable
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.

Command	Description
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

rate-limit

When using the Modular Policy Framework, limit the rate of messages for packets that match a **match** command or class map by using the **rate-limit** command in match or class configuration mode. This rate limit action is available in an inspection policy map (the **policy-map type inspect** command) for application traffic; however, not all applications allow this action. To disable this action, use the **no** form of this command.

rate-limit *messages_per_second*

no rate-limit *messages_per_second*

Syntax Description

messages_per_second	Limits the messages per second.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Match and class configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

An inspection policy map consists of one or more **match** and **class** commands. The exact commands available for an inspection policy map depends on the application. After you enter the **match** or **class** command to identify application traffic (the **class** command refers to an existing **class-map type inspect** command that in turn includes **match** commands), you can enter the **rate-limit** command to limit the rate of messages.

When you enable application inspection using the **inspect** command in a Layer 3/4 policy map (the **policy-map** command), you can enable the inspection policy map that contains this action, for example, enter the **inspect dns dns_policy_map** command where dns_policy_map is the name of the inspection policy map.

Examples

The following example limits the invite requests to 100 messages per second:

```
hostname(config-cmap)# policy-map type inspect sip sip-map1
hostname(config-pmap-c)# match request-method invite
hostname(config-pmap-c)# rate-limit 100
```

Related Commands

Commands	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
policy-map type inspect	Defines special actions for application inspection.
show running-config policy-map	Display all current policy map configurations.

reactivation-mode

To specify the method by which failed servers in a group are reactivated, use the **reactivation-mode** command in aaa-server protocol mode. To remove this specification, use the **no** form of this command.

reactivation-mode {**depletion** [**deadtime** *minutes*] | **timed**}

no reactivation-mode [**depletion** [**deadtime** *minutes*] | **timed**]

Syntax Description

deadtime *minutes*	(Optional) Specifies the amount of time in minutes, between 0 and 1440, that elapses between the disabling of the last server in the group and the subsequent re-enabling of all servers. The default is 10 minutes.
depletion	Reactivates failed servers only after all of the servers in the group are inactive.
timed	Reactivates failed servers after 30 seconds of down time.

Defaults

The default reactivation mode is depletion, and the default deadtime value is 10.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Aaa-server protcocol configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Each server group has an attribute that specifies the reactivation policy for its servers.

In **depletion** mode, when a server is deactivated, it remains inactive until all other servers in the group are inactive. When and if this occurs, all servers in the group are reactivated. This approach minimizes the occurrence of connection delays due to failed servers. When **depletion** mode is in use, you can also specify the **deadtime** parameter. The **deadtime** parameter specifies the amount of time (in minutes) that will elapse between the disabling of the last server in the group and the subsequent re-enabling of all servers. This parameter is meaningful only when the server group is being used in conjunction with the local fallback feature.

In **timed** mode, failed servers are reactivated after 30 seconds of down time. This is useful when customers use the first server in a server list as the primary server and prefer that it is online whenever possible. This policy breaks down in the case of UDP servers. Since a connection to a UDP server will

not fail, even if the server is not present, UDP servers are put back on line blindly. This could lead to slowed connection times or connection failures if a server list contains multiple servers that are not reachable.

Accounting server groups that have simultaneous accounting enabled are forced to use the **timed** mode. This implies that all servers in a given list are equivalent.

Examples

The following example configures a TACACS+ AAA server named "srvgrp1" to use the depletion reactivation mode, with a deadtime of 15 minutes:

```
hostname(config)# aaa-server svrgrp1 protocol tacacs+
hostname(config-aaa-sersver-group)# reactivation-mode depletion deadtime 15
hostname(config-aaa-server)# exit
hostname(config)#
```

The following example configures a TACACS+ AAA server named "srvgrp1" to use timed reactivation mode:

```
hostname(config)# aaa-server svrgrp2 protocol tacacs+
hostname(config-aaa-server)# reactivation-mode timed
hostname(config-aaa-server)#
```

Related Commands

accounting-mode	Indicates whether accounting messages are sent to a single server or sent to all servers in the group.
aaa-server protocol	Enters aaa-server group configuration mode so you can configure AAA server parameters that are group-specific and common to all hosts in the group.
max-failed-attempts	Specifies the number of failures that will be tolerated for any given server in the server group before that server is deactivated.
clear configure aaa-server	Removes all AAA server configuration.
show running-config aaa-server	Displays AAA server statistics for all AAA servers, for a particular server group, for a particular server within a particular group, or for a particular protocol.

record-entry

To specify the trustpoints to be used for the creation of the CTL file, use the record-entry command in ctl-file configuration mode. To remove a record entry from a CTL, use the **no** form of this command.

record-entry [**capf** | **cucm** | **cucm-tftp** | **tftp**] **trustpoint** *trustpoint* **address** *ip_address* [**domain-name** *domain_name*]

no record-entry [**capf** | **cucm** | **cucm-tftp** | **tftp**] **trustpoint** *trust_point* **address** *ip_address* [**domain-name** *domain_name*]

Syntax Description

capf	Specifies the role of this trustpoint to be CAPF. Only one CAPF trustpoint can be configured.
cucm	Specifies the role of this trustpoint to be CCM. Multiple CCM trustpoints can be configured.
cucm-tftp	Specifies the role of this trustpoint to be CCM+TFTP. Multiple CCM+TFTP trustpoints can be configured.
domain-name *domain_name*	(Optional) Specifies the domain name of the trustpoint used to create the DNS field for the trustpoint. This is appended to the Common Name field of the Subject DN to create the DNS Name. The domain name should be configured when the FQDN is not configured for the trustpoint.
address *ip_address*	Specifies the IP address of the trustpoint.
tftp	Specifies the role of this trustpoint to be TFTP. Multiple TFTP trustpoints can be configured.
trustpoint *trust_point*	Sets the name of the trustpoint installed.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
CTL-file configuration	•	—	•	—	—

Command History

Release	Modification
8.0(4)	The command was introduced.

Usage Guidelines

Only one domain-name can be specified. If the CTL file does not exist, manually export this certificate from CUCM to the ASA.

Use this command only when you have not configured a CTL file for the Phone Proxy. Do not use this command when you have already configured a CTL file.

The IP address you specify in the *ip_address* argument must be the global address or address as seen by the IP phones because it will be the IP address used for the CTL record for the trustpoint.

Add additional record-entry configurations for each entity that is required in the CTL file.

Examples

The following example shows the use of the **record-entry** command to specify the trustpoints to be used for the creation of the CTL file:

```
hostname(config-ctl-file)# record-entry cucm-tftp trustpoint cucm1 address 192.168.1.2
```

Related Commands

Command	Description
ctl-file (global)	Specifies the CTL file to create for Phone Proxy configuration or the CTL file to parse from Flash memory.
ctl-file (phone-proxy)	Specifies the CTL file to use for Phone Proxy configuration.
phone-proxy	Configures the Phone Proxy instance.

redirect-fqdn

To enable or disable redirection using a fully qualified domain name in vpn load-balancing mode, use the **redirect-fqdn enable** command in global configuration mode.

redirect-fqdn {enable | disable}

no redirect-fqdn {enable | disable}

Note To use VPN load balancing, you must have an ASA Model 5510 with a Plus license or an ASA Model 5520 or higher. VPN load balancing also requires an active 3DES/AES license. The security appliance checks for the existence of this crypto license before enabling load balancing. If it does not detect an active 3DES or AES license, the security appliance prevents the enabling of load balancing and also prevents internal configuration of 3DES by the load balancing system unless the license permits this usage.

Syntax Description

disable	Disables redirection with fully qualified domain names.
enable	Enables redirection with fully qualified domain names.

Defaults

This behavior is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Vpn load-balancing mode	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

By default, the ASA sends only IP addresses in load-balancing redirection to a client. If certificates are in use that are based on DNS names, the certificates will be invalid when redirected to a secondary device.

As a VPN cluster master, this ASA can send a fully qualified domain name (FQDN), using reverse DNS lookup, of a cluster device (another ASA in the cluster), instead of its outside IP address, when redirecting VPN client connections to that cluster device.

All of the outside and inside network interfaces on the load-balancing devices in a cluster must be on the same IP network.

To do WebVPN load Balancing using FQDNs rather than IP addresses, you must do the following configuration steps:

Step 1 Enable the use of FQDNs for Load Balancing with the **redirect-fqdn enable** command.

Step 2 Add an entry for each of your ASA outside interfaces into your DNS server, if such entries are not already present. Each ASA outside IP address should have a DNS entry associated with it for lookups. These DNS entries must also be enabled for Reverse Lookup.

Step 3 Enable DNS lookups on your ASA with the command - "dns domain-lookup inside" (or whichever interface has a route to your DNS server).

Step 4 Define your DNS server IP address on the ASA; for example: `dns name-server 10.2.3.4` (IP address of your DNS server)

Examples

The following is an example of the **redirect-fqdn** command that disables redirection:

```
hostname(config)# vpn load-balancing
hostname(config-load-balancing)# redirect-fqdn disable
hostname(config-load-balancing)#
```

The following is an example of a VPN load-balancing command sequence that includes an interface command that enables redirection for a fully qualified domain name, specifies the public interface of the cluster as "test" and the private interface of the cluster as "foo":

```
hostname(config)# interface GigabitEthernet 0/1
hostname(config-if)# ip address 209.165.202.159 255.255.255.0
hostname(config)# nameif test
hostname(config)# interface GigabitEthernet 0/2
hostname(config-if)# ip address 209.165.201.30 255.255.255.0
hostname(config)# nameif foo
hostname(config)# vpn load-balancing
hostname(config-load-balancing)# nat 192.168.10.10
hostname(config-load-balancing)# priority 9
hostname(config-load-balancing)# interface lbpublic test
hostname(config-load-balancing)# interface lbprivate foo
hostname(config-load-balancing)# cluster ip address 209.165.202.224
hostname(config-load-balancing)# cluster key 123456789
hostname(config-load-balancing)# cluster encryption
hostname(config-load-balancing)# cluster port 9023
hostname(config-load-balancing)# redirect-fqdn enable
hostname(config-load-balancing)# participate
```

Related Commands

Command	Description
clear configure vpn load-balancing	Removes the load-balancing runtime configuration and disables load balancing.
show running-config vpn load-balancing	Displays the the current VPN load-balancing virtual cluster configuration.
show vpn load-balancing	Displays VPN load-balancing runtime statistics.
vpn load-balancing	Enters vpn load-balancing mode.

redistribute (EIGRP)

To redistribute routes from one routing domain into the EIGRP routing process, use the **redistribute** command in router configuration mode. To remove the redistribution, use the **no** form of this command.

redistribute {{**ospf** *pid* [**match** {**internal** | **external** [**1** | **2**] | **nssa-external** [**1** | **2**]}]} | **rip** | **static** | **connected**} [**metric** *bandwidth delay reliability load mtu*] [**route-map** *map_name*]

no redistribute {{**ospf** *pid* [**match** {**internal** | **external** [**1** | **2**] | **nssa-external** [**1** | **2**]}]} | **rip** | **static** | **connected**} [**metric** *bandwidth delay reliability load mtu*] [**route-map** *map_name*]

Syntax Description

bandwidth	EIGRP bandwidth metric in Kilobits per second. Valid values are from 1 to 4294967295.
connected	Specifies redistributing a network connected to an interface into the EIGRP routing process.
delay	EIGRP delay metric, in 10 microsecond units. Valid values are from 0 to 4294967295.
external *type*	Specifies the OSPF metric routes that are external to a specified autonomous system; valid values are **1** or **2**.
internal *type*	Specifies OSPF metric routes that are internal to a specified autonomous system.
load	EIGRP effective bandwidth (loading) metric. Valid values are from 1 to 255, where 255 indicates 100% loaded.
match	(Optional) Specifies the conditions for redistributing routes from OSPF into EIGRP.
metric	(Optional) Specifies the values for the EIGRP metrics of routes redistributed into the EIGRP routing process.
mtu	The MTU of the path. Valid values are from 1 to 65535.
nssa-external *type*	Specifies the OSPF metric type for routes that are external to an NSSA; valid values are **1** or **2**.
ospf *pid*	Used to redistribute an OSPF routing process into the EIGRP routing process. The *pid* specifies the internally used identification parameter for an OSPF routing process; valid values are from 1 to 65535.
reliability	EIGRP reliability metric. Valid values are from 0 to 255, where 255 indicates 100% reliability.
rip	Specifies redistributing a network from the RIP routing process into the EIGRP routing process.
route-map *map_name*	(Optional) Name of the route map used to filter the imported routes from the source routing protocol to the EIGRP routing process. If not specified, all routes are redistributed.
static	Used to redistribute a static route into the EIGRP routing process.

Defaults

The following are the command defaults:

- **match**: **Internal**, **external 1**, **external 2**

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

You must specify the **metric** with the redistribute command if you do not have a **default-metric** command in your EIGRP configuration.

Examples

The following example redistributes static and connected routes into the EIGRP routing process:

```
hostname(config)# router eigrp 100
hostname(config-router)# redistribute static
hostname(config-router)# redistribute connected
```

Related Commands

Command	Description
router eigrp	Creates an EIGRP routing process and enters configuration mode for that process.
show running-config router	Displays the commands in the global router configuration.

redistribute (OSPF)

To redistribute routes from one routing domain into an OSPF routing process, use the **redistribute** command in router configuration mode. To remove the redistribution when no options are included, use the **no** form of this command. The **no** form of the command with an option removes only the configuration for that option.

redistribute {{**ospf** *pid* [**match** {**internal** | **external** [**1** | **2**] | **nssa-external** [**1** | **2**]}]} | **rip** | **static** | **connected** | **eigrp** *as-number*} [**metric** *metric_value*] [**metric-type** *metric_type*] [**route-map** *map_name*] [**tag** *tag_value*] [**subnets**]

no redistribute {{**ospf** *pid* [**match** {**internal** | **external** [**1** | **2**] | **nssa-external** [**1** | **2**]}]} | **rip** | **static** | **connected**} [**metric** *metric_value*] [**metric-type** *metric_type*] [**route-map** *map_name*] [**tag** *tag_value*] [**subnets**]

Syntax Description

connected	Specifies redistributing a network connected to an interface into an OSPF routing process.
eigrp *as-number*	Used to redistribute EIGRP routes into the OSPF routing process. The *as-number* specifies the autonomous system number of the EIGRP routing process. Valid values are from 1 to 65535.
external *type*	Specifies the OSPF metric routes that are external to a specified autonomous system; valid values are **1** or **2**.
internal *type*	Specifies OSPF metric routes that are internal to a specified autonomous system.
match	(Optional) Specifies the conditions for redistributing routes from one routing protocol into another.
metric *metric_value*	(Optional) Specifies the OSPF default metric value from 0 to 16777214.
metric-type *metric_type*	(Optional) The external link type associated with the default route advertised into the OSPF routing domain. It can be either of the following two values: **1** (Type 1 external route) or **2** (Type 2 external route).
nssa-external *type*	Specifies the OSPF metric type for routes that are external to an NSSA; valid values are **1** or **2**.
ospf *pid*	Used to redistribute an OSPF routing process into the current OSPF routing process. The *pid* specifies the internally used identification parameter for an OSPF routing process; valid values are from 1 to 65535.
rip	Specifies redistributing a network from the RIP routing process into the current OSPF routing process.
route-map *map_name*	(Optional) Name of the route map used to filter the imported routes from the source routing protocol to the current OSPF routing process. If not specified, all routes are redistributed.
static	Used to redistribute a static route into an OSPF process.

subnets	(Optional) For redistributing routes into OSPF, scopes the redistribution for the specified protocol. If not used, only classful routes are redistributed.
tag *tag_value*	(Optional) A 32-bit decimal value attached to each external route. This value is not used by OSPF itself. It may be used to communicate information between ASBRs. If none is specified, then the remote autonomous system number is used for routes from BGP and EGP; for other protocols, zero (0) is used. Valid values range from 0 to 4294967295.

Defaults

The following are the command defaults:

- **metric** *metric-value*: 0
- **metric-type** *type-value*: **2**
- **match**: **Internal**, **external 1**, **external 2**
- **tag** *tag-value*: 0

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Router configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	This command was modified to include the **rip** keyword.
8.0(2)	This command was modified to include the **eigrp** keyword.
9.0(1)	Multiple context mode is supported.

Examples

The following example shows how to redistribute static routes into the current OSPF process:

```
hostname(config)# router ospf 1
hostname(config-rtr)# redistribute static
```

Related Commands

Command	Description
redistribute (RIP)	Redistributes routes into the RIP routing process.
router ospf	Enters router configuration mode.
show running-config router	Displays the commands in the global router configuration.

redistribute (OSPFv3)

To redistribute IPv6 routes from one OSPFv3 routing domain into OSPFv3 routing domain, use the **redistribute** command in IPv6 router configuration mode. To disable the redistribution, use the **no** form of this command.

redistribute *source-protocol* [*process-id*] [**include-connected** {**level-1** | **level-1-2** | **level-2**}] [*as-number*] [**metric** {*metric-value* | **transparent**}] [**metric-type** *type-value*] [**match** {**external** [**1** | **2**] | **internal** | **nssa-external** [**1** | **2**]}] [**tag** *tag-value*] [**route-map** *map-tag*]

no redistribute *source-protocol* [*process-id*] [**include-connected** {**level-1** | **level-1-2** | **level-2**}] [*as-number*] [**metric** {*metric-value* | **transparent**}] [**metric-type** *type-value*] [**match** {**external** [**1** | **2**] | **internal** | **nssa-external** [**1** | **2**]}] [**tag** *tag-value*] [**route-map** *map-tag*]

Syntax Description

as-number	Specifies the autonomous system number of the routing process. Valid values range from 1 to 65535.
external	Specifies the OSPFv3 metric routes that are external to a specified autonomous system, but are imported into OSPFv3 as type 1 or type 2 external routes. Valid values are 1 or 2.
include-connected	(Optional) Allows the target protocol to redistribute routes that have been learned by the source protocol and connected prefixes on thosed interfces over which the source protocol is running.
internal	Specifies OSPFv3 metric routes that are internal to a specified autonomous system.
level-1	Specifies that for Intermediate System-to-Intermediate System (IS-IS), the level 1 routes are redistributed into other IP routing protocols independently.
level-1-2	Specifies that for IS-IS, both level 1 and level 2 routes are redistributed into other IP routing protocols independently.
level-2	Specifies that for IS-IS, level 2 routes are redistributed into other IP routing protocols independently.
map-tag	Specifies the identifier of a configured route map.
match	(Optional) Redistributes routes into other routing domains.
metric *metric_value*	(Optional) Specifies the OSPFv3 default metric value, which ranges from 0 to 16777214.
metric-type *metric_type*	(Optional) Specifies the external link type that is associated with the default route advertised into the OSPFv3 routing domain. It can be either of the following two values: 1 for type 1 external routes or 2 for type 2 external routes.
nssa-external	Specifies routes that are external to the autonomous system, but are imported into OSPFv3 in a not so stubby area (NSSA) for IPv6 as type 1 or type 2 external routes.
process-id	(Optional) Specifies the number that is assigned administratively when the OSPFv3 routing process is enabled.
route-map *map_name*	(Optional) Specifies the name of the route map that is used to filter the routes that are imported from the source routing protocol to the current OSPFv3 routing protocol. If specified but no route maps tags are listed, no routes are imported. If not specified, all routes are redistributed.

source-protocol	Specifies the source protocol from which routes are being redistributed. Valid values can be one of the following: connected, ospf, or static.
tag *tag_value*	(Optional) Specifies the 32-bit decimal value that is attached to each external route. This value is not used by OSPFv3 itself, but may be used to communicate information between ASBRs. If none is specified, then the remote autonomous system number is used for routes from BGP and EGP; for other protocols, zero is used. Valid values range from 0 to 4294967295.
transparent	(Optional) Causes RIP to use the routing table metric for redistributed routes as the RIP metric.

Defaults

The following are the command defaults:

- **metric** *metric-value*: **0**
- **metric-type** *type-value*: **2**
- **match**: **internal**, **external 1**, **external 2**
- **tag** *tag-value*: **0**

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
IPv6 router configuration	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Examples

The following example shows how to redistribute static routes into the current OSPFv3 process:

```
hostname(config-if)# ipv6 router ospf 1
hostname(config-rtr)# redistribute static
```

Related Commands

Command	Description
ipv6 router ospf	Enters router configuration mode for OSPFv3.
show running-config ipv6 router	Displays the commands in the router configuration for OSPFv3.

redistribute (RIP)

To redistribute routes from another routing domain into the RIP routing process, use the **redistribute** command in router configuration mode. To remove the redistribution, use the **no** form of this command.

redistribute {{**ospf** *pid* [**match** {**internal** | **external** [**1** | **2**] | **nssa-external** [**1** | **2**]}]} | **static** | **connected** | **eigrp** *as-number*} [**metric** {*metric_value* | **transparent**}] [**route-map** *map_name*]

no redistribute {{**ospf** *pid* [**match** {**internal** | **external** [**1** | **2**] | **nssa-external** [**1** | **2**]}]} | **static** | **connected** | **eigrp** *as-number*} [**metric** {*metric_value* | **transparent**}] [**route-map** *map_name*]

Syntax Description

connected	Specifies redistributing a network connected to an interface into the RIP routing process.
eigrp *as-number*	Used to redistribute EIGRP routes into the RIP routing process. The *as-number* specifies the autonomous system number of the EIGRP routing process. Valid values are from 1 to 65535.
external *type*	Specifies the OSPF metric routes that are external to a specified autonomous system; valid values are **1** or **2**.
internal *type*	Specifies OSPF metric routes that are internal to a specified autonomous system.
match	(Optional) Specifies the conditions for redistributing routes from OSPF to RIP.
metric {*metric_value* | **transparent**}	(Optional) Specifies the RIP metric value for the route being redistributed. Valid values for *metric_value* are from 0 to 16. Setting the metric to **transparent** causes the current route metric to be used.
nssa-external *type*	Specifies the OSPF metric type for routes that are external to a not-so-stubby area (NSSA); valid values are **1** or **2**.
ospf *pid*	Used to redistribute an OSPF routing process into the RIP routing process. The *pid* specifies the internally used identification parameter for an OSPF routing process; valid values are from 1 to 65535.
route-map *map_name*	(Optional) Name of the route map used to filter the imported routes from the source routing protocol to the RIP routing process. If not specified, all routes are redistributed.
static	Used to redistribute a static route into an OSPF process.

Defaults

The following are the command defaults:

- **metric** *metric-value*: 0
- **match**: **Internal**, **external 1**, **external 2**

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Router configuration	•	—	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.
8.0(2)	This command was modified to include the **eigrp** keyword.
9.0(1)	Multiple context mode is supported.

Examples

The following example shows how to redistribute static routes into the current RIP process:

```
hostname(config)# router rip
hostname(config-rtr)# network 10.0.0.0
hostname(config-rtr)# redistribute static metric 2
```

Related Commands

Command	Description
redistribute (EIGRP)	Redistributes routes from other routing domains into EIGRP.
redistribute (OSPF)	Redistributes routes from other routing domains into OSPF.
router rip	Enables the RIP routing process and enters router configuration mode for that process.
show running-config router	Displays the commands in the global router configuration.

redundant-interface

To set which member interface of a redundant interface is active, use the **redundant-interface** command in privileged EXEC mode.

redundant-interface redundant*number* **active-member** *physical_interface*

Syntax Description

active-member *physical_interface*	Sets the active member. See the **interface** command for accepted values. Both member interfaces must be the same physical type.
redundant *number*	Specifies the redundant interface ID, such as **redundant1**.

Defaults

By default, the active interface is the first member interface listed in the configuration, if it is available.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

To view which interface is active, enter the following command:

```
hostname# show interface redundantnumber detail | grep Member
```

For example:

```
hostname# show interface redundant1 detail | grep Member
      Members GigabitEthernet0/3(Active), GigabitEthernet0/2
```

Examples

The following example creates a redundant interface. By default, gigabitethernet 0/0 is active because it is first in the configuration. The redundant-interface command sets gigabitethernet 0/1 as the active interface.

```
hostname(config-if)# interface redundant 1
hostname(config-if)# member-interface gigabitethernet 0/0
hostname(config-if)# member-interface gigabitethernet 0/1

hostname(config-if)# redundant-interface redundant1 active-member gigabitethernet0/1
```

Related Commands

Command	Description
clear interface	Clears counters for the **show interface** command.
debug redundant-interface	Displays debug messages related to redundant interface events or errors.
interface redundant	Creates a redundant interface.
member-interface	Assigns a member interface to a redundant interface pair.
show interface	Displays the runtime status and statistics of interfaces.

regex

To create a regular expression to match text, use the **regex** command in global configuration mode. To delete a regular expression, use the **no** form of this command.

regex *name regular_expression*

no regex *name* [*regular_expression*]

Syntax Description

name	Specifies the regular expression name, up to 40 characters in length.
regular_expression	Specifies the regular expression up to 100 characters in length. See "Usage Guidelines" for a list of metacharacters you can use in the regular expression.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

The **regex** command can be used for various features that require text matching. For example, you can configure special actions for application inspection using Modular Policy Framework using an *inspection policy map* (see the **policy map type inspect** command). In the inspection policy map, you can identify the traffic you want to act upon by creating an inspection class map containing one or more **match** commands or you can use **match** commands directly in the inspection policy map. Some **match** commands let you identify text in a packet using a regular expression; for example, you can match URL strings inside HTTP packets. You can group regular expressions in a regular expression class map (see the **class-map type regex** command).

A regular expression matches text strings either literally as an exact string, or by using *metacharacters* so you can match multiple variants of a text string. You can use a regular expression to match the content of certain application traffic; for example, you can match body text inside an HTTP packet.

Note As an optimization, the ASA searches on the deobfuscated URL. Deobfuscation compresses multiple forward slashes (/) into a single slash. For strings that commonly use double slashes, like "http://", be sure to search for "http:/" instead.

Table 41-1 lists the metacharacters that have special meanings.

Table 41-1 regex Metacharacters

Character	Description	Notes
.	Dot	Matches any single character. For example, **d.g** matches dog, dag, dtg, and any word that contains those characters, such as doggonnit.
(*exp*)	Subexpression	A subexpression segregates characters from surrounding characters, so that you can use other metacharacters on the subexpression. For example, **d(o|a)g** matches dog and dag, but **do|ag** matches do and ag. A subexpression can also be used with repeat quantifiers to differentiate the characters meant for repetition. For example, **ab(xy){3}z** matches abxyxyxyz.
|	Alternation	Matches either expression it separates. For example, **dog|cat** matches dog or cat.
?	Question mark	A quantifier that indicates that there are 0 or 1 of the previous expression. For example, **lo?se** matches lse or lose. **Note** You must enter **Ctrl+V** and then the question mark or else the help function is invoked.
*	Asterisk	A quantifier that indicates that there are 0, 1 or any number of the previous expression. For example, **lo*se** matches lse, lose, loose, and so on.
+	Plus	A quantifier that indicates that there is at least 1 of the previous expression. For example, **lo+se** matches lose and loose, but not lse.
{*x*} or {*x*,}	Minimum repeat quantifier	Repeat at least *x* times. For example, **ab(xy){2,}z** matches abxyxyz, abxyxyxyz, and so on.
[*abc*]	Character class	Matches any character in the brackets. For example, **[abc]** matches a, b, or c.
[^*abc*]	Negated character class	Matches a single character that is not contained within the brackets. For example, **[^abc]** matches any character other than a, b, or c. **[^A-Z]** matches any single character that is not an uppercase letter.
[*a*-*c*]	Character range class	Matches any character in the range. **[a-z]** matches any lowercase letter. You can mix characters and ranges: **[abcq-z]** matches a, b, c, q, r, s, t, u, v, w, x, y, z, and so does [**a-cq-z]**. The dash (-) character is literal only if it is the last or the first character within the brackets: **[abc-]** or **[-abc]**.
""	Quotation marks	Preserves trailing or leading spaces in the string. For example, **" test"** preserves the leading space when it looks for a match.
^	Caret	Specifies the beginning of a line.

Table 41-1 regex Metacharacters (continued)

Character	Description	Notes
\	Escape character	When used with a metacharacter, matches a literal character. For example, **\[** matches the left square bracket.
char	Character	When character is not a metacharacter, matches the literal character.
\r	Carriage return	Matches a carriage return 0x0d.
\n	Newline	Matches a new line 0x0a.
\t	Tab	Matches a tab 0x09.
\f	Formfeed	Matches a form feed 0x0c.
\x*NN*	Escaped hexadecimal number	Matches an ASCII character using hexadecimal (exactly two digits).
NNN	Escaped octal number	Matches an ASCII character as octal (exactly three digits). For example, the character 040 represents a space.

To test a regular expression to make sure it matches what you think it will match, enter the **test regex** command.

The regular expression performance impact is determined by two main factors:

- The length of text that needs to be searched for a regular expression match.

  The regular expression engine has only a small impact to the ASA performance when the search length is small.

- The number of regular expression chained tables that need to be searched for a regular expression match.

How the Search Length Impacts Performance

When you configure a regular expression search, every byte of the searched text is usually examined against a regular expression database to find a match. The longer the searched text is, the longer the search time will be. Below is a performance test case which illustrates this phenomenon.

- An HTTP transaction includes one 300-byte long GET request and one 3250-byte long response.
- 445 regular expressions for URI search and 34 regular expressions for request body search.
- 55 regular expressions for response body search.

When a policy is configured to search the URI and the body in the HTTP GET request only, the throughput is:

- 420 mbps when the corresponding regular expression database is not searched.
- 413 mbps when the corresponding regular expression database is searched (this demonstrates a relatively small overhead of using regular expression).

But when a policy is configured to also search the whole HTTP response body, the throughput drops down to 145 mbps because of the long response body (3250 bytes) search.

Following is a list of factors that will increase the length of text for a regular expression search:

- A regular expression search is configured on multiple, different protocol fields. For example, in HTTP inspection, if only URI is configured for a regular expression match, then only the URI field is searched for a regular expression match, and the search length is then limited to the URI length. But if additional protocol fields are also configured for a regular expression match, such as Headers, Body, and so on, then the search length will increase to include the header length and body length.
- The field to be searched is long. For example, if the URI is configured for a regular expression search, then a long URI in a GET request will have a long search length. Also, currently the HTTP body search length is limited by default to 200 bytes. If, however, a policy is configured to search the body, and the body search length is changed to 5000 bytes, then there will be severe impact on the performance because of the long body search.

How the Number of Chained Regular Expression Tables Impact Performance

Currently, all regular expressions that are configured for the same protocol field, such as all regular expressions for URI, are built into a database consisting of one or more regular expression chained tables. The number of tables is determined by the total memory required and the availability of memory at the time the tables are built. A regular expression database will be split into multiple tables under any of the following conditions:

- When the total memory required is greater than 32 MB since the maximum table size is limited to 32 MB.
- When the size of the largest contiguous memory is not sufficient to build a complete regular expression database, then smaller but multiple tables will be built to accommodate all the regular expressions. Note that the degree of memory fragmentation varies depending on many factors that are interrelated and are almost impossible to predict the level of fragmentation.

With multiple chained tables, each table must be searched for regular expression matches and hence the search time increases in proportion to the number of tables that are searched.

Certain types of regular expressions tend to increase the table size significantly. It is prudent to design regular expressions in a way to avoid wildcard and repeating factors if possible. See Table 41-1 for a description of the following metacharacters:

- Regular expressions with wildcard type of specifications:
  - Dot (.)
- Various character classes that match any character in a class:
  - [^a-z]
  - [a-z]
  - [abc]]
- Regular expressions with repeating type of specifications:
  - *
  - +
  - {n,}
- Combination of the wild-card and repeating types of regular expressions can increase the table size dramatically, for examples:
  - 123.*xyz
  - 123.+xyz
  - [^a-z]+
  - [^a-z]*

  - .*123.* (This should not be done because this is equivalent to matching "123").

The following examples illustrate how memory consumptions are different for regular expressions with and without wildcards and repetition.

- Database size for the following 4 regular expressions is 958,464 bytes.

```
regex r1 "q3rfict9(af.*12)*ercvdf"
regex r2 "qtaefce.*qeraf.*adasdfev"
regex r3 "asdfdfdfds.*wererewr0e.*aaaxxxx.*xxx"
regex r4 "asdfdfdfds.*wererewr0e.*afdsvcvr.*aefdd"
```

- Database size for the following 4 regular expressions is only 10240 bytes.

```
regex s1 "abcde"
regex s2 "12345"
regex s3 "123xyz"
regex s4 "xyz123"
```

A large number of regular expressions will increase the total memory that is needed for the regular expression database and hence increases the probabilities of more tables if memory is fragmented. Following are examples of memory consumptions for different numbers of regular expressions:

- 100 sample URIs: 3,079,168 bytes
- 200 sample URIs: 7,156,224 bytes
- 500 sample URIs: 11,198,971 bytes

Note The maximum number of regular expressions per context is 2048.

The **debug menu regex 40 10** command can be used to display how many chained tables there are in each regex database.

Examples

The following example creates two regular expressions for use in an inspection policy map:

```
hostname(config)# regex url_example example\.com
hostname(config)# regex url_example2 example2\.com
```

Related Commands

Command	Description
class-map type inspect	Creates ain inspection class map to match traffic specific to an application.
policy-map	Creates a policy map by associating the traffic class with one or more actions.
policy-map type inspect	Defines special actions for application inspection.
class-map type regex	Creates a regular expression class map.
test regex	Tests a regular expression.

reload

To reboot and reload the configuration, use the **reload** command in privileged EXEC mode.

reload [**at** *hh*:*mm* [*month day* | *day month*]] [**cancel**] [**in** [*hh*:]*mm*] [**max-hold-time** [*hh*:]*mm*] [**noconfirm**] [**quick**] [**reason** *text*] [**save-config**]

Syntax Description

at *hh*:*mm*	(Optional) Schedules a reload of the software to take place at the specified time (using a 24-hour clock). If you do not specify the month and day, the reload occurs at the specified time on the current day (if the specified time is later than the current time), or on the next day (if the specified time is earlier than the current time). Specifying 00:00 schedules the reload for midnight. The reload must take place within 24 hours.
cancel	(Optional) Cancels a scheduled reload.
day	(Optional) Number of the day in the range from 1 to 31.
in [*hh*:]*mm*	(Optional) Schedules a reload of the software to take effect in the specified minutes or hours and minutes. The reload must occur within 24 hours.
max-hold-time [*hh*:]*mm*	(Optional) Specifies the maximum hold time the ASA waits to notify other subsystems before a shutdown or reboot. After this time elapses, a quick (forced) shutdown/reboot occurs.
month	(Optional) Specifies the name of the month. Enter enough characters to create a unique string for the name of the month. For example, "Ju" is not unique because it could represent June or July, but "Jul" is unique because no other month beginning with those exact three letters.
noconfirm	(Optional) Permits the ASA to reload without user confirmation.
quick	(Optional) Forces a quick reload, without notifying or correctly shutting down all the subsystems.
reason *text*	(Optional) Specifies the reason for the reload, 1 to 255 characters. The reason text is sent to all open IPsec VPN client, terminal, console, Telnet, SSH, and ASDM connections/sessions. **Note** Some applications, like ISAKMP, require additional configuration to send the reason text to IPsec VPN clients. See the VPN CLI Configuration Guide for more information.
save-config	(Optional) Saves the running configuration to memory before shutting down. If you do not enter the **save-config** keyword, any configuration changes that have not been saved will be lost after the reload.
save-show-tech	(Optional) Saves the output of the **show tech** command to a file before the reload occurs.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command.

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was modified to add the following new arguments and keywords: *day*, *hh*, *mm*, *month*, **quick**, **save-config**, and *text*.
9.1(3)	The **save-show-tech** keyword was added.

Usage Guidelines

The command lets you reboot the ASA and reload the configuration from flash memory.

By default, the **reload** command is interactive. The ASA first checks whether the configuration has been modified but not saved. If so, the ASA prompts you to save the configuration. In multiple context mode, the ASA prompts for each context with an unsaved configuration. If you specify the **save-config** keyword, the configuration is saved without prompting you. The ASA then prompts you to confirm that you really want to reload the system. Only a response of **y** or pressing the **Enter** key causes a reload. After confirmation, the ASA starts or schedules the reload process, depending on whether you have specified a delay keyword (**in** or **at**).

By default, the reload process operates in "graceful" mode. All registered subsystems are notified when a reboot is about to occur, allowing these subsystems to shut down properly before the reboot. To avoid waiting until for such a shutdown to occur, specify the **max-hold-time** keyword to specify a maximum time to wait. Alternatively, you can use the **quick** keyword to force the reload process to begin abruptly, without notifying the affected subsystems or waiting for a graceful shutdown.

You can force the **reload** command to operate noninteractively by specifying the **noconfirm** keyword. In this case, the ASA does not check for an unsaved configuration unless you have specified the **save-config** keyword. The ASA does not prompt you for confirmation before rebooting the system. It starts or schedules the reload process immediately, unless you have specified a delay keyword, although you can specify the **max-hold-time** or **quick** keyword to control the behavior or the reload process.

Use the **reload cancel** command to cancel a scheduled reload. You cannot cancel a reload that is already in progress.

Note Configuration changes that are not written to the flash partition are lost after a reload. Before rebooting, enter the **write memory** command to store the current configuration in the flash partition.

Examples

The following example shows how to reboot and reload a configuration:

```
hostname# reload
Proceed with ?  [confirm] y

Rebooting...

XXX Bios VX.X
...
```

Related Commands

Command	Description
show reload	Displays the reload status of the ASA.

remote-access threshold session-threshold-exceeded

To set threshold values, use the **remote-access threshold** command in global configuration mode. To remove threshold values, use the **no** version of this command. This command specifies the number of active remote access sessions, at which point the ASA sends traps.

remote-access threshold session-threshold-exceeded {*threshold-value*}

no **remote-access threshold session-threshold-exceeded**

Syntax Description

threshold-value	Specifies an integer less than or equal to the session limit the ASA supports.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	—	—	•

Command History

Release	Modification
7.0 (1)	This command was introduced.

Examples

The following example shows how to set a threshold value of 1500:

```
hostname# remote-access threshold session-threshold-exceeded 1500
```

Related Commands

Command	Description
snmp-server enable trap remote-access	Enables threshold trapping.

rename

To rename a file or a directory from the source filename to the destination filename, use the **rename** command in privileged EXEC mode.

rename [**/noconfirm***]* [**disk0**: | **disk1**: | **flash:**] *source-path* [**disk0**: | **disk1**: | **flash:**] *destination-path*

Syntax Description

/noconfirm	(Optional) Suppresses the confirmation prompt.
destination-path	Specifies the path of the destination file.
disk0*:*	(Optional) Specifies the internal flash memory, followed by a colon.
disk1:	(Optional) Specifies the external flash memory card, followed by a colon.
flash:	(Optional) Specifies the internal flash memory, followed by a colon.
source-path	Specifies the path of the source file.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **rename flash: flash:** command prompts you to enter a source and destination filename.

You cannot rename a file or directory across file systems.

For example:

```
hostname# rename flash: disk1:
Source filename []? new-config
Destination filename []? old-config
%Cannot rename between filesystems
```

Examples

The following example shows how to rename a file named “test” to “test1”:

```
hostname# rename flash: flash:
Source filename [running-config]? test
Destination filename [n]? test1
```

Related Commands

Command	Description
mkdir	Creates a new directory.
rmdir	Removes a directory.
show file	Displays information about the file system.

rename (class-map)

To rename a class map, enter the **rename** command in class-map configuration mode.

rename *new_name*

Syntax Description

new_name	Specifies the new name of the class map, up to 40 characters in length. The name "class-default" is reserved.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class-map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to rename a class map from test to test2:

```
hostname(config)# class-map test
hostname(config-cmap)# rename test2
```

Related Commands

Command	Description
class-map	Creates a class map.

renewal-reminder

To specify the number of days before user certificate expiration that an initial reminder to re-enroll is sent to certificate owners, use the **renewal-reminder** command in ca server configuration mode. To reset the time to the default of 14 days, use the **no** form of this command.

renewal-reminder *days*

no renewal-reminder

Syntax Description

days	Specifies the time in days before the expiration of an issued certificate that the certificate owner is first reminded to re-enroll. Valid values range from 1 to 90 days.

Defaults

The default value is 14 days.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
ca server configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

There are three reminders in all. An e-mail is sent automatically to the certificate owner for each of the three reminders if an e-mail address is specified in the user database. If no e-mail address exists, a syslog message is generated to alert the administrator of the renewal.

By default, the CA server sends the following three e-mail messages in the specified order before certificate expiration:

1. Certification Enrollment Invitation
2. Reminder: Certification Enrollment Invitation
3. Last Reminder: Certification Enrollment Invitation

The first e-mail is the invitation, the second e-mail is a reminder, and the third e-mail is a final reminder. The default setting for this notification is 14 days, which means that the initial invitation goes out 14 days before certificate expiration, the reminder e-mail goes out 7 days before certificate expiration, and the final reminder e-mail goes out 3 days before certificate expiration.

You can customize the renewal-reminder interval using the **renewal-reminder** *days* command.

Examples

The following example specifies that the ASA send an expiration notice to users 7 days before certificate expiration:

```
hostname(config)# crypto ca server
hostname(config-ca-server)# renewal-reminder 7
hostname(config-ca-server)#
```

The following example resets the expiration notice time to the default of 14 days before certificate expiration:

```
hostname(config)# crypto ca server
hostname(config-ca-server)# no renewal-reminder
hostname(config-ca-server)#
```

Related Commands

Command	Description
crypto ca server	Provides access to the ca server configuration mode command set, which allows you to configure and manage the local CA.
lifetime	Specifies the lifetimes of the CA certificate, all issued certificates, and the CRL.
show crypto ca server	Displays the configuration details of the local CA server.

replication http

To enable HTTP connection replication for the failover group, use the **replication http** command in failover group configuration mode. To disable HTTP connection replication, use the **no** form of this command.

replication http

no replication http

Syntax Description

This command has no arguments or keywords.

Defaults

Disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Failover group configuration	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

By default, the ASA does not replicate HTTP session information when Stateful Failover is enabled. Because HTTP sessions are typically short-lived, and because HTTP clients typically retry failed connection attempts, not replicating HTTP sessions increases system performance without causing serious data or connection loss. The **replication http** command enables the stateful replication of HTTP sessions in a Stateful Failover environment, but could have a negative effect on system performance.

This command is available for Active/Active failover only. It provides the same functionality as the **failover replication http** command for Active/Standby failover, except for failover groups in Active/Active failover configurations.

Examples

The following example shows a possible configuration for a failover group:

```
hostname(config)# failover group 1
hostname(config-fover-group)# primary
hostname(config-fover-group)# preempt 100
hostname(config-fover-group)# replication http
hostname(config-fover-group)# exit
```

Related Commands

Command	Description
failover group	Defines a failover group for Active/Active failover.
failover replication http	Configures stateful failover to replicate HTTP connections.

request-command deny

To disallow specific commands within FTP requests, use the **request-command deny** command in FTP map configuration mode, which is accessible by using the **ftp-map** command. To remove the configuration, use the **no** form of this command.

request-command deny { **appe** | **cdup** | **dele** | **get** | **help** | **mkd** | **put** | **rmd** | **rnfr** | **rnto** | **site** | **stou** }

no request-command deny { **appe** | **cdup** | **help** | **retr** | **rnfr** | **rnto** | **site** | **stor** | **stou** }

Syntax Description

appe	Disallows the command that appends to a file.
cdup	Disallows the command that changes to the parent directory of the current working directory.
dele	Disallows the command that deletes a file on the server.
get	Disallows the client command for retrieving a file from the server.
help	Disallows the command that provides help information.
mkd	Disallows the command that makes a directory on the server.
put	Disallows the client command for sending a file to the server.
rmd	Disallows the command that deletes a directory on the server.
rnfr	Disallows the command that specifies rename-from filename.
rnto	Disallows the command that specifies rename-to filename.
site	Disallows the command that is specific to the server system. Usually used for remote administration.
stou	Disallows the command that stores a file using a unique file name.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
FTP map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command is used for controlling the commands allowed within FTP requests traversing the ASA when using strict FTP inspection.

Examples

The following example causes the ASA to drop FTP requests containing **stor**, **stou**, or **appe** commands:

```
hostname(config)# ftp-map inbound_ftp
hostname(config-ftp-map)# request-command deny put stou appe
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
ftp-map	Defines an FTP map and enables FTP map configuration mode.
inspect ftp	Applies a specific FTP map to use for application inspection.
mask-syst-reply	Hides the FTP server response from clients.
policy-map	Associates a class map with specific security actions.

request-data-size

To set the size of the payload in the SLA operation request packets, use the **request-data-size** command in sla monitor protocol configuration mode. To restore the default value, use the **no** form of this command.

request-data-size *bytes*

no request-data-size

Syntax Description

bytes	The size, in bytes, of the request packet payload. Valid values are from 0 to 16384. The minimum value depends upon the protocol used. For echo types, the minimum value is 28 bytes. Do not set this value higher than the maximum allowed by the protocol or the PMTU. **Note** The ASA adds an 8-byte timestamp to the payload, so the actual payload is *bytes* + 8.

Defaults

The default *bytes* is 28.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
sla monitor protocol configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

For reachability, it may be necessary to increase the default data size to detect PMTU changes between the source and the target. Low PMTU will likely affect session performance and, if detected, may indicate that the secondary path be used.

Examples

The following example configures an SLA operation with an ID of 123 that uses an ICMP echo request/response time probe operation. It sets the payload size of the echo request packets to 48 bytes and the number of echo requests sent during an SLA operation to 5.

```
hostname(config)# sla monitor 123
hostname(config-sla-monitor)# type echo protocol ipIcmpEcho 10.1.1.1 interface outside
hostname(config-sla-monitor-echo)# num-packets 5
hostname(config-sla-monitor-echo)# request-data-size 48
hostname(config-sla-monitor-echo)# timeout 4000
```

```
hostname(config-sla-monitor-echo)# threshold 2500
hostname(config-sla-monitor-echo)# frequency 10
hostname(config)# sla monitor schedule 123 life forever start-time now
hostname(config)# track 1 rtr 123 reachability
```

Related Commands

Command	Description
num-packets	Specifies the number of request packets to send during an SLA operation.
sla monitor	Defines an SLA monitoring operation.
type echo	Configures the SLA operation as an echo response time probe operation.

request-queue

To specify the maximum number of GTP requests that will be queued waiting for a response, use the **request-queue** command in GTP map configuration mode, which is accessed by using the **gtp-map** command. Use the **no** form of this command to return this number to the default of 200.

request-queue *max_requests*

no request-queue *max_requests*

Syntax Description

max_requests	The maximum number of GTP requests that will be queued waiting for a response. The range values is 1 to 4294967295.

Defaults

The *max_requests* default is 200.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
GTP map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **gtp request-queue** command specifies the maximum number of GTP requests that are queued waiting for a response. When the limit has been reached and a new request arrives, the request that has been in the queue for the longest time is removed. The Error Indication, the Version Not Supported and the SGSN Context Acknowledge messages are not considered as requests and do not enter the request queue to wait for a response.

Examples

The following example specifies a maximum request queue size of 300 bytes:

```
hostname(config)# gtp-map qtp-policy
hostname(config-gtpmap)# request-queue-size 300
```

Related Commands

Commands	Description
clear service-policy inspect gtp	Clears global GTP statistics.
debug gtp	Displays detailed information about GTP inspection.

Commands	Description
gtp-map	Defines a GTP map and enables GTP map configuration mode.
inspect gtp	Applies a specific GTP map to use for application inspection.
show service-policy inspect gtp	Displays the GTP configuration.

request-timeout

To configure the number of seconds before a failed SSO authentication attempt times out, use the **request-timeout** command in webvpn configuration mode.

To return to the default value, use the **no** form of this command.

request-timeout *seconds*

no request-timeout

Syntax Description

seconds	The number of seconds before a failed SSO authentication attempt times out. The range is 1 to 30 seconds. Fractions are not supported.

Defaults

The default value for this command is 5 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.1.1	This command was introduced.

Usage Guidelines

Single sign-on support, available only for WebVPN, lets users access different secure services on different servers without entering a username and password more than once. The ASA currently supports SiteMinder and SAML POST type SSO servers.

This command applies to both types of SSO Servers.

Once you have configured the ASA to support SSO authentication, you have the option to adjust two timeout parameters:

- The number of seconds before a failed SSO authentication attempt times out using the **request-timeout** command.
- The number of times the ASA retries a failed SSO authentication attempt. (See the **max-retry-attempts** command.)

Examples

The following example, entered in webvpn-config-sso-siteminder mode, configures an authentication timeout at ten seconds for the SiteMinder type SSO server, “example”:

```
hostname(config-webvpn)# sso-server example type siteminder
hostname(config-webvpn-sso-siteminder)# request-timeout 10
```

Related Commands

Command	Description
max-retry-attempts	Configures the number of times the ASA retries a failed SSO authentication attempt.
policy-server-secret	Creates a secret key used to encrypt authentication requests to a SiteMinder SSO server.
show webvpn sso-server	Displays the operating statistics for all SSO servers configured on the security device.
sso-server	Creates a single sign-on server.
test sso-server	Tests an SSO server with a trial authentication request.
web-agent-url	Specifies the SSO server URL to which the ASA makes SiteMinder SSO authentication requests.

reserve-port-protect

To restrict usage on the reserve port during media negotiation, use the **reserve-port-protect** command in parameters configuration mode. Parameters configuration mode is accessible from policy map configuration mode. To disable this feature, use the **no** form of this command.

reserve-port-protect

no reserve-port-protect

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Examples

The following example shows how to protect the reserve port in an RTSP inspection policy map:

```
hostname(config)# policy-map type inspect rtsp rtsp_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# reserve-port-protect
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

reserved-bits

To clear reserved bits in the TCP header, or drop packets with reserved bits set, use the **reserved-bits** command in tcp-map configuration mode. To remove this specification, use the **no** form of this command.

reserved-bits {**allow** | **clear** | **drop**}

no reserved-bits {**allow** | **clear** | **drop**}

Syntax Description

allow	Allows packet with the reserved bits in the TCP header.
clear	Clears the reserved bits in the TCP header and allows the packet.
drop	Drops the packet with the reserved bits in the TCP header.

Defaults

The reserved bits are allowed by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tcp-map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **tcp-map** command is used along with the Modular Policy Framework infrastructure. Define the class of traffic using the **class-map** command and customize the TCP inspection with **tcp-map** commands. Apply the new TCP map using the **policy-map** command. Activate TCP inspection with **service-policy** commands.

Use the **tcp-map** command to enter tcp-map configuration mode. Use the **reserved-bits** command in tcp-map configuration mode to remove ambiguity as to how packets with reserved bits are handled by the end host, which may lead to desynchronizing the ASA. You can choose to clear the reserved bits in the TCP header or even drop packets with the reserved bits set.

Examples

The following example shows how to clear packets on all TCP flows with the reserved bit set:

```
hostname(config)# access-list TCP extended permit tcp any any
hostname(config)# tcp-map tmap
hostname(config-tcp-map)# reserved-bits clear
hostname(config)# class-map cmap
hostname(config-cmap)# match access-list TCP
```

```
hostname(config)# policy-map pmap
hostname(config-pmap)# class cmap
hostname(config-pmap)# set connection advanced-options tmap
hostname(config)# service-policy pmap global
```

Related Commands

Command	Description
class	Specifies a class map to use for traffic classification.
policy-map	Configures a policy; that is, an association of a traffic class and one or more actions.
set connection	Configures connection values.
tcp-map	Creates a TCP map and allows access to tcp-map configuration mode.

reset

When using the Modular Policy Framework, drop packets, close the connection, and send a TCP reset for traffic that matches a **match** command or class map by using the **reset** command in match or class configuration mode. This reset action is available in an inspection policy map (the **policy-map type inspect** command) for application traffic; however, not all applications allow this action. To disable this action, use the **no** form of this command.

reset [**log**]

no reset [**log**]

Syntax Description

log	Logs the match. The system log message number depends on the application.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Match and class configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

An inspection policy map consists of one or more **match** and **class** commands. The exact commands available for an inspection policy map depends on the application. After you enter the **match** or **class** command to identify application traffic (the **class** command refers to an existing **class-map type inspect** command that in turn includes **match** commands), you can enter the **reset** command to drop packets and close the connection for traffic that matches the **match** command or **class** command.

If you reset a connection, then no further actions are performed in the inspection policy map. For example, if the first action is to reset the connection, then it will never match any further **match** or **class** commands. If the first action is to log the packet, then a second action, such as resetting the connection, can occur. You can configure both the **reset** and the **log** action for the same **match** or **class** command, in which case the packet is logged before it is reset for a given match.

When you enable application inspection using the **inspect** command in a Layer 3/4 policy map (the **policy-map** command), you can enable the inspection policy map that contains this action, for example, enter the **inspect http http_policy_map** command where http_policy_map is the name of the inspection policy map.

Examples

The following example resets the connection and sends a log when they match the http-traffic class map. If the same packet also matches the second **match** command, it will not be processed because it was already dropped.

```
hostname(config-cmap)# policy-map type inspect http http-map1
hostname(config-pmap)# class http-traffic
hostname(config-pmap-c)# reset log
hostname(config-pmap-c)# match req-resp content-type mismatch
hostname(config-pmap-c)# reset log
```

Related Commands

Commands	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
policy-map type inspect	Defines special actions for application inspection.
show running-config policy-map	Display all current policy map configurations.

CHAPTER 42

retries through rtp-min-port rtp-max-port Commands

retries

To specify the number of times to retry the list of DNS servers when the ASA does not receive a response, use the **dns retries** command in global configuration mode. To restore the default setting, use the **no** form of this command.

retries *number*

no retries [*number*]

Syntax Description

number	Specifies the number of retries, from 0 through 10. The default is 2.

Defaults

The default number of retries is 2.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

Add DNS servers using the **name-server** command.

This command replaces the **dns name-server** command.

Examples

The following example sets the number of retries to 0. The ASA tries each server only once.

```
hostname(config)# dns server-group dnsgroup1
hostname(config-dns-server-group)# dns retries 0
```

Related Commands

Command	Description
clear configure dns	Removes all DNS commands.
dns server-group	Enters the dns server-group mode.
show running-config dns server-group	Shows one or all the existing dns-server-group configurations.

retry-count

To set the value for the number of consecutive polling failures to the Cloud Web Security proxy server before determining the server is unreachable, enter the **retry-count** command in scansafe general-options configuration mode. To restore the default, use the **no** form of this command.

retry-count *value*

no retry-count [*value*]

Syntax Description

value	Enters the retry counter value, from 2 to 100. The default is 5.

Command Default

The default value is 5.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Scansafe general-options configuration	•	•	•	—	•

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

When you subscribe to the Cisco Cloud Web Security service, you are assigned a primary Cloud Web Security proxy server and backup proxy server.

If any client is unable to reach the primary server, then the ASA starts polling the tower to determine availability. (If there is no client activity, the ASA polls every 15 miniutes.) If the proxy server is unavailable after a configured number of retries (the default is 5; this setting is configurable), the server is declared unreachable, and the backup proxy server becomes active.

If a client or the ASA can reach the server at least twice consecutively before the retry count is reached, the polling stops and the tower is determined to be reachable.

After a failover to the backup server, the ASA continues to poll the primary server. If the primary server becomes reachable, then the ASA returns to using the primary server.

Examples

The following example configures a retry value of 7:

```
scansafe general-options
 server primary ip 180.24.0.62 port 8080
 retry-count 7
```

Related Commands

Command	Description
class-map type inspect scansafe	Creates an inspection class map for whitelisted users and groups.
default user group	Specifies the default username and/or group if the ASA cannot determine the identity of the user coming into the ASA.
http[**s**] (parameters)	Specifies the service type for the inspection policy map, either HTTP or HTTPS.
inspect scansafe	Enables Cloud Web Security inspection on the traffic in a class.
license	Configures the authentication key that the ASA sends to the Cloud Web Security proxy servers to indicate from which organization the request comes.
match user group	Matches a user or group for a whitelist.
policy-map type inspect scansafe	Creates an inspection policy map so you can configure essential parameters for the rule and also optionally identify the whitelist.
scansafe	In multiple context mode, allows Cloud Web Security per context.
scansafe general-options	Configures general Cloud Web Security server options.
server {**primary** | **backup**}	Configures the fully qualified domain name or IP address of the primary or backup Cloud Web Security proxy servers.
show conn scansafe	Shows all Cloud Web Security connections, as noted by the capitol Z flag.
show scansafe server	Shows the status of the server, whether it's the current active server, the backup server, or unreachable.
show scansafe statistics	Shows total and current http connections.
user-identity monitor	Downloads the specified user or group information from the AD agent.
whitelist	Performs the whitelist action on the class of traffic.

retry-interval

To configure the amount of time between retry attempts for a particular AAA server designated in a previous **aaa-server host** command, use the **retry-interval** command in aaa-server host mode. To reset the retry interval to the default value, use the **no** form of this command.

retry-interval *seconds*

no retry-interval

Syntax Description

seconds	Specify the retry interval (1-10 seconds) for the request. This is the time the ASA waits before retrying a connection request.

Defaults

The default retry interval is 10 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
AAA-server host	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was modified to conform to CLI guidelines.

Usage Guidelines

Use the **retry-interval** command to specify or reset the number of seconds the ASA waits between connection attempts. Use the **timeout** command to specify the length of time during which the ASA attempts to make a connection to a AAA server.

Examples

The following examples show the **retry-interval** command in context.

```
hostname(config)# aaa-server svrgrp1 protocol radius
hostname(config-aaa-server-group)# aaa-server svrgrp1 host 1.2.3.4
hostname(config-aaa-server-host)# timeout 7
hostname(config-aaa-server-host)# retry-interval 9
hostname(config-aaa-server-host)#
```

Related Commands

Command	Description
aaa-server host	Enters aaa-server host configuration mode, so that you can configure AAA server parameters that are host-specific.

clear configure aaa-server	Removes all AAA command statements from the configuration.
show running-config aaa-server	Displays AAA server statistics for all AAA servers, for a particular server group, for a particular server within a particular group, or for a particular protocol
timeout	Specifies the length of time during which the ASA attempts to make a connection to a AAA server.

reval-period

To specify the interval between each successful posture validation in a NAC Framework session, use the **reval-period** command in nac-policy-nac-framework configuration mode. To remove the command from the NAC Framework policy, use the **no** form of this command.

reval-period *seconds*

no reval-period [*seconds*]

Syntax Description

seconds	Number of seconds between each successful posture validation. The range is 300 to 86400.

Defaults

The default value is 36000.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
nac-policy-nac-framework configuration	•	—	•	—	—

Command History

Release	Modification
7.3(0)	"nac-" removed from command name. Command moved from group-policy configuration mode to nac-policy-nac-framework configuration mode.
7.2(1)	This command was introduced.

Usage Guidelines

The ASA starts the revalidation timer after each successful posture validation. The expiration of this timer triggers the next unconditional posture validation. The ASA maintains posture validation during revalidation. The default group policy becomes effective if the Access Control Server is unavailable during posture validation or revalidation.

Examples

The following example changes the revalidation timer to 86400 seconds:

```
hostname(config-nac-policy-nac-framework)# reval-period 86400
hostname(config-nac-policy-nac-framework)
```

The following example removes the revalidation timer from the NAC policy:

```
hostname(config-nac-policy-nac-framework)# no reval-period
hostname(config-nac-policy-nac-framework)
```

Related Commands

Command	Description
eou timeout	Changes the number of seconds to wait after sending an EAP over UDP message to the remote host in a NAC Framework configuration.
sq-period	Specifies the interval between each successful posture validation in a NAC Framework session and the next query for changes in the host posture.
nac-policy	Creates and accesses a Cisco NAC policy, and specifies its type.
debug nac	Enables logging of NAC Framework events.
eou revalidate	Forces immediate posture revalidation of one or more NAC Framework sessions.

revert webvpn all

To remove all web-related data (customization, plug-in, translation table, URL list, and web content) from the ASA flash memory, enter the **revert webvpn all** command in privileged EXEC mode.

revert webvpn all

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC mode	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Use the **revert webvpn all** command to disable and remove all web-related information (customization, plug-in, translation table, URL list, and web content) from the flash memory of the ASA. Removal of all web-related data returns default settings when applicable.

Examples

The following command removes all of the web-related configuration data from the ASA:

```
hostname# revert webvpn all
hostname
```

Related Commands

Command	Description
show import webvpn (*option*)	Displays various imported WebVPN data and plug-ins. currently present in flash memory on the ASA.

revert webvpn AnyConnect-customization

To remove a file from the ASA that customizes the AnyConnect client GUI, use the **revert webvpn AnyConnect-customization** command in privileged EXEC mode.

revert webvpn AnyConnect-customization type *type* **platform** *platform* **name** *name*

Syntax Description

type	The type of customizing file: • binary—An executable that replaces the AnyConnect GUI. • resource—A resource file, such as the corporate logo. • transform—A transform that customizes the MSI.
platform	The OS of the endpoint device running the AnyConnect client. Specify one of the following: **linux**, **mac-intel**, **mac-powerpc**, **win**, or **win-mobile**.
name	The name that identifies the file to remove (maximum 64 characters).

Defaults

There is no default behavior for this command.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

For detailed procedures for customizing the AnyConnect client GUI, see the *AnyConnect VPN Client Administrator Guide*.

Examples

The following example removes the Cisco logo that was previously imported as a resource file to customize the AnyConnect GUI:

```
hostname# revert webvpn AnyConnect-customization type resource platform win name
cisco_logo.gif
```

Related Commands

Command	Description
`customization`	Specifies the customization object to use for a tunnel-group, group, or user.
`export customization`	Exports a customization object.
`import customization`	Installs a customization object.
`revert webvpn all`	Removes all webvpn-related data (customization, plug-in, translation table, URL list, and web content).
`show webvpn customization`	Displays the current customization objects present on the flash device of the ASA.

revert webvpn customization

To remove a customization object from the ASA cache memory, enter the **revert webvpn customization** command in privileged EXEC mode.

revert webvpn customization *name*

Syntax Description

name	Specifies the name of the customization object to be deleted.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC mode	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Use the **revert webvpn customization** command to remove Clientless SSL VPN support for the specified customization and to remove it from the cache memory on the ASA. Removal of a customization object returns default settings when applicable. A customization object contains the configuration parameters for a specific, named portal page.

Version 8.0 software extends the functionality for configuring customization, and the new process is incompatible with previous versions. During the upgrade to 8.0 software, the security appliance preserves a current configuration by using old settings to generate new customization objects. This process occurs only once, and is more than a simple transformation from the old format to the new one because the old values are only a partial subset of the new ones.

Note Version 7.2 portal customizations and URL lists work in the Beta 8.0 configuration only if clientless SSL VPN (WebVPN) is enabled on the appropriate interface in the Version 7.2(x) configuration file before you upgrade to Version 8.0.

Examples

The following command removes the customization object named GroupB:

```
hostname# revert webvpn customization groupb
hostname
```

Related Commands

Command	Description
customization	Specifies the customization object to use for a tunnel-group, group, or user.
export customization	Exports a customization object.
import customization	Installs a customization object.
revert webvpn all	Removes all webvpn-related data (customization, plug-in, translation table, URL list, and web content).
show webvpn customization	Displays the current customization objects present on the flash device of the ASA.

revert webvpn plug-in protocol

To remove a plug-in from the flash device of the ASA, enter the **revert webvpn plug-in protocol** command in privileged EXEC mode.

revert plug-in protocol *protocol*

Syntax Description

protocol	Enter one of the following strings: • **rdp** The Remote Desktop Protocol plug-in lets the remote user connect to a computer running Microsoft Terminal Services. • **ssh** The Secure Shell plug-in lets the remote user establish a secure channel to a remote computer, or lets the remote user use Telnet to connect to a remote computer. • **vnc** The Virtual Network Computing plug-in lets the remote user use a monitor, keyboard, and mouse to view and control a computer with remote desktop sharing turned on.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC mode	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Use the **revert webvpn plug-in protocol** command to disable and remove Clientless SSL VPN support for the specified Java-based client application, as well as to remove it from the flash drive of the ASA.

Examples

The following command removes support for RDP:

```
hostname# revert webvpn plug-in protocol rdp
hostname
```

Related Commands

Command	Description
import webvpn plug-in protocol	Copies the specified plug-in from a URL to the flash device of the ASA. Clientless SSL VPN automatically supports the use of the Java-based client application for future sessions when you issue this command.
show import webvpn plug-in	Lists the plug-ins present on the flash device of the ASA.

revert webvpn translation-table

To remove a translation table from the ASA flash memory, enter the **revert webvpn translation-table** command in privileged EXEC mode.

revert webvpn translation-table *translationdomain language*

Syntax Description

translationdomain	Available translation domains: • AnyConnect • PortForwarder • Banners • CSD • Customization • URL List • (Translations of messages from RDP, SSH, and VNC plug-ins.)
language	Specifies the character-encoding method to be deleted.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC mode	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Use the **revert webvpn translation-table** command to disable and remove an imported translation table and to remove it from the flash memory on the ASA. Removal of a translation table returns default settings when applicable.

Examples

The following command removes the AnyConnect translation table, Dutch:

```
hostname# revert webvpn translation-table anyconnect dutch
hostname
```

Related Commands

Command	Description
revert webvpn all	Removes all webvpn-related data (customization, plug-in, translation table, URL-list, and web content) .
show webvpn translation-table	Displays the current translation tables currently present on the flash device of the ASA.

revert webvpn url-list

To remove a URL list from the ASA, enter the **revert webvpn url-list** command in privileged EXEC mode.

revert webvpn url-list template *name*

Syntax Description

template *name*	Specifies the name of a URL list.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC mode	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Use the **revert webvpn url-list** command to disable and remove a current URL list from the flash drive of the ASA. Removal of a url-list returns default settings when applicable.

The template argument used with the **revert webvpn url-list** command specifies the name of a previously configured list of URLs. To configure such a list, use the **url-list** command in global configuration mode.

Examples

The following command removes the URL list, servers2:

```
hostname# revert webvpn url-list servers2
hostname
```

Related Commands

Command	Description
revert webvpn all	Removes all webvpn-related data (customization, plug-in, translation table, URL list, and web content) .
show running-configuration url-list	Displays the current set of configured URL list commands.
url-list (WebVPN mode)	Applies a list of WebVPN servers and URLs to a particular user or group policy.

revert webvpn webcontent

To remove a specified web object from a location in the ASA flash memory, enter the **revert webvpn webcontent** command in privileged EXEC mode.

revert webvpn webcontent *filename*

Syntax Description

filename	Specifies the name of the flash memory file with the web content to be deleted.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC mode	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Use the **revert webvpn content** command to disable and remove a file containing the web content and to remove it from the flash memory of the ASA. Removal of web content returns default settings when applicable.

Examples

The following command removes the web content file, ABCLogo, from the ASA flash memory:

```
hostname# revert webvpn webcontent abclogo
hostname
```

Related Commands

Command	Description
revert webvpn all	Removes all webvpn-related data (customization, plug-in, translation table, URL list, and web content).
show webvpn webcontent	Displays the web content currently present in flash memory on the ASA.

revocation-check

To define whether revocation checking is needed for the trustpool policy, use the **revocation-check** command in crypto ca trustpool configuration mode. To restore the default revocation checking method, which is *none*, use the **no** form of this command.

revocation-check {[**crl**] [**ocsp**] [**none**] }

no revocation-check {[**crl**] [**ocsp**] [**none**]}

Syntax Description

crl	Specifies that the ASA should use CRL as the revocation checking method.
none	Specifies that the ASA should interpret the certificate status as valid, even if all methods return an error.
ocsp	Specifies that the ASA should use OCSP as the revocation checking method.

Defaults

The default value is *none*.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Crypto ca trustpool configuration mode	•	•	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

The signer of the OCSP response is usually the OCSP server (responder) certificate. After receiving the response, devices try to verify the responder certificate.

Normally a CA sets the lifetime of its OCSP responder certificate to a relatively short period to minimize the chance of compromising its security. The CA includes an ocsp-no-check extension in the responder certificate that indicates it does not need revocation status checking. But if this extension is not present, the device tries to check the certificate revocation status using the revocation methods you configure for the trustpoint with this **revocation-check** command.The OCSP responder certificate must be verifiable if it does not have an ocsp-no-check extension since the OCSP revocation check fails unless you also set the *none* option to ignore the status check.

Note With any permutation of the optional arguments, *none* must be the last keyword used.

The ASA tries the methods in the order in which you configure them, trying the second and third methods only if the previous method returns an error (for example, server down), instead of finding the status as revoked.

You can set a revocation checking method in the client certificate validating trustpoint and also configure no revocation checking (**revocation-check none)** in the responder certificate validating trustpoint. See the **match certificate** command for a configuration example.

If you have configured the ASA with the **revocation-check crl none** command, when a client connects to the ASA, it automatically starts downloading the CRL because it has not been cached, then validates the certificate, and finishes downloading the CRL. In this case, if the CRL is not cached, the ASA validates the certificate before downloading the CRL.

Examples

```
hostname(config-ca-trustpoint)# revocation-check ?

crypto-ca-trustpoint mode commands/options:
  crl   Revocation check by CRL
  none  Ignore revocation check
  ocsp  Revocation check by OCSP
(config-ca-trustpoint)#
```

Related Commands

Command	Description
crypto ca trustpool policy	Enters a submode that provides the commands that define the trustpool policy.
match certificate allow expired-certificate	Allows the administrator to exempt certain certificates from expiration checking.
match certificate skip revocation-check	Allows the administrator to exempt certain certificates from revocation checking.

rewrite

To disable content rewriting a particular application or type of traffic over a WebVPN connection, use the **rewrite** command in webvpn mode. To eliminate a rewrite rule, use the **no** form of this command with the rule number, which uniquely identifies the rule. To eliminate all rewriting rules, use the **no** form of the command without the rule number.

By default, the ASA rewrites, or transforms, all WebVPN traffic.

rewrite order *integer* **{enable | disable} resource-mask** *string* **[name** *resource name***]**

no rewrite order *integer* **{enable | disable} resource-mask** *string* **[name** *resource name***]**

Syntax Description

disable	Defines this rewrite rule as a rule that disables content rewriting for the specified traffic. When you disable content rewriting, traffic does not go through the security appliance.
enable	Defines this rewrite rule as a rule that enables content rewriting for the specified traffic.
integer	Sets the order of the rule among all of the configured rules. The range is 1-65534.
name	(Optional) Identifies the name of the application or resource to which the rule applies.
order	Defines the order in which the ASA applies the rule.
resource-mask	Identifies the application or resource for the rule.
resource name	(Optional) Specifies the application or resource to which the rule applies. Maximum 128 bytes.
string	Specifies the name of the application or resource to match that can contain a regular expression. You can use the following wildcards: Specifies a pattern to match that can contain a regular expression. You can use the following wildcards: * — Matches everything. You cannot use this wildcard by itself. It must accompany an alphanumeric string. ? —Matches any single character. [!seq] — Matches any character not in sequence. [seq] — Matches any character in sequence. Maximum 300 bytes.

Defaults

The default is to rewrite everything.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

The ASA performs content rewriting for applications to insure that they render correctly over WebVPN connections. Some applications do not require this processing, such as external public websites. For these applications, you might choose to turn off content rewriting.

You can turn off content rewriting selectively by using the rewrite command with the disable option to let users browse specific sites directly without going through the ASA. This is similar to split-tunneling in IPsec VPN connections.

You can use this command multiple times. The order in which you configure entries is important because the ASA searches rewrite rules by order number and applies the first rule that matches.

Examples

The following example shows how to configure a rewrite rule, order number of 1, that turns off content rewriting for URLS from cisco.com domains:

```
hostname(config-webpn)# rewrite order 2 disable resource-mask *cisco.com/*
```

Related Commands

Command	Description
apcf	Specifies nonstandard rules to use for a particular application.
proxy-bypass	Configures minimal content rewriting for a particular application.

re-xauth

To require that IPsec users reauthenticate on IKE rekey, issue the **re-xauth enable** command in group-policy configuration mode. To disable user reauthentication on IKE rekey, use the **re-xauth disable** command.

To remove the re-xauth attribute from the running configuration, use the **no** form of this command. This enables inheritance of a value for reauthentication on IKE rekey from another group policy.

re-xauth {**enable** [**extended**] | **disable**}

no re-xauth

Syntax Description

disable	Disables reauthentication on IKE rekey
enable	Enables reauthentication on IKE rekey
extended	Extends the time allowed for reentering authentication credentials until the maximum lifetime of the configured SA.

Defaults

Reauthentication on IKE rekey is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group policy configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.0.4	The **extended** keyword was added.

Usage Guidelines

Reauthentication on IKE rekey applies only to IPsec connections.

If you enable reauthentication on IKE rekey, the ASA prompts the user to enter a username and password during initial Phase 1 IKE negotiation and also prompts for user authentication whenever an IKE rekey occurs. Reauthentication provides additional security.

The user has 30 seconds to enter credentials, and up to three attempts before the SA expires at approximately two minutes and the tunnel terminates. Use the **extended** keyword to allow users to reenter authentication credentials until the maximum lifetime of the configured SA.

To check the configured rekey interval, in monitoring mode, issue the **show crypto ipsec sa** command to view the security association lifetime in seconds and lifetime in kilobytes of data.

Note The reauthentication fails if there is no user at the other end of the connection.

Examples

The following example shows how to enable reauthentication on rekey for the group policy named FirstGroup:

```
hostname(config) #group-policy FirstGroup attributes
hostname(config-group-policy)# re-xauth enable
```

rip send version

To specify the RIP version used to send RIP updates on an interface, use the **rip send version** command in interface configuration mode. To restore the defaults, use the **no** form of this command.

rip send version {[**1**] [**2**]}

no rip send version

Syntax Description

1	Specifies RIP Version 1.
2	Specifies RIP Version 2.

Defaults

The ASA sends RIP Version 1 packets.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

You can override the global RIP send version setting on a per-interface basis by entering the **rip send version** command on an interface.

If you specify RIP version 2, you can enable neighbor authentication and use MD5-based encryption to authenticate the RIP updates.

Examples

The following example configures the ASA to send and receive RIP Versions 1 and 2 packets on the specified interface:

```
hostname(config)# interface GigabitEthernet0/3
hostname(config-if)# rip send version 1 2
hostname(config-if)# rip receive version 1 2
```

Related Commands

Command	Description
rip receive version	Specifies the RIP version to accept when receiving updates on a specific interface.
router rip	Enables the RIP routing process and enter router configuration mode for that process.
version	Specifies the version of RIP used globally by the ASA.

rip receive version

To specify the version of RIP accepted on an interface, use the **rip receive version** command in interface configuration mode. To restore the defaults, use the **no** form of this command.

version {[**1**] [**2**]}

no version

Syntax Description

1	Specifies RIP Version 1.
2	Specifies RIP Version 2.

Defaults

The ASA accepts Version 1 and Version 2 packets.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

You can override the global setting on a per-interface basis by entering the **rip receive version** command on an interface.

If you specify RIP version 2, you can enable neighbor authentication and use MD5-based encryption to authenticate the RIP updates.

Examples

The following example configures the ASA to receive RIP Versions 1 and 2 packets the specified interface:

```
hostname(config)# interface GigabitEthernet0/3
hostname(config-if)# rip send version 1 2
hostname(config-if)# rip receive version 1 2
```

Related Commands

Command	Description
rip send version	Specifies the RIP version to use when sending update out of a specific interface.
router rip	Enables the RIP routing process and enter router configuration mode for that process.
version	Specifies the version of RIP used globally by the ASA.

rip authentication mode

To specify the type of authentication used in RIP Version 2 packets, use the **rip authentication mode** command in interface configuration mode. To restore the default authentication method, use the **no** form of this command.

rip authentication mode {**text** | **md5**}

no rip authentication mode

Syntax Description

md5	Uses MD5 for RIP message authentication.
text	Uses clear text for RIP message authentication (not recommended).

Defaults

Clear text authentication is used by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

If you specify RIP version 2, you can enable neighbor authentication and use MD5-based encryption to authenticate the RIP updates.

Use the **show interface** command to view the **rip authentication** commands on an interface.

Examples

The following examples shows RIP authentication configured on interface GigabitEthernet0/3:

```
hostname(config)# interface Gigabit0/3
hostname(config-if)# rip authentication mode md5
hostname(config-if)# rip authentication key thisismykey key_id 5
```

Related Commands

Command	Description
rip authentication key	Enables RIP Version 2 authentication and specifies the authentication key.
rip receive version	Specifies the RIP version to accept when receiving updates on a specific interface.

Command	Description
rip send version	Specifies the RIP version to use when sending update out of a specific interface.
show running-config interface	Displays the configuration commands for the specified interface.
version	Specifies the version of RIP used globally by the ASA.

rip authentication key

To enable authentication of RIP Version 2 packets and specify the authentication key, use the **rip authentication key** command in interface configuration mode. To disable RIP Version 2 authentication, use the **no** form of this command.

rip authentication key [0 | 8] *string* **key_id** *id*

no rip authentication key

Syntax Description

0	Specifies an unencrypted password will follow.
8	Specifies an encrypted password will follow.
id	Specifies the key identification value; valid values range from 1 to 255.
key	Specifies the shared key to be used for the authentication key string. The key can contain up to 16 characters.
string	Specifies the unencrypted (cleartext) user password.

Defaults

RIP authentication is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

If you specify RIP version 2, you can enable neighbor authentication and use MD5-based encryption to authenticate the RIP updates. When you enable neighbor authentication, you must ensure that the *key* and *key_id* arguments are the same as those used by neighbor devices that provide RIP version 2 updates. The *key* is a text string of up to 16 characters.

Use the **show interface** command to view the **rip authentication** commands on an interface.

Examples

The following examples shows RIP authentication configured on interface GigabitEthernet0/3:

```
hostname(config)# interface Gigabit0/3
hostname(config-if)# rip authentication mode md5
hostname(config-if)# rip authentication key 8 yWIvi0qJAnGK5MRWQzrhIohkGP1wKb 5
```

Related Commands

Command	Description
rip authentication mode	Specifies the type of authentication used in RIP Version 2 packets.
rip receive version	Specifies the RIP version to accept when receiving updates on a specific interface.
rip send version	Specifies the RIP version to use when sending update out of a specific interface.
show running-config interface	Displays the configuration commands for the specified interface.
version	Specifies the version of RIP used globally by the ASA.

rip receive version

To specify the version of RIP accepted on an interface, use the **rip receive version** command in interface configuration mode. To restore the defaults, use the **no** form of this command.

version {[**1**] [**2**]}

no version

Syntax Description

1	Specifies RIP Version 1.
2	Specifies RIP Version 2.

Defaults

The ASA accepts Version 1 and Version 2 packets.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

You can override the global setting on a per-interface basis by entering the **rip receive version** command on an interface.

If you specify RIP version 2, you can enable neighbor authentication and use MD5-based encryption to authenticate the RIP updates.

Examples

The following example configures the ASA to receive RIP Versions 1 and 2 packets the specified interface:

```
hostname(config)# interface GigabitEthernet0/3
hostname(config-if)# rip send version 1 2
hostname(config-if)# rip receive version 1 2
```

Related Commands

Command	Description
rip send version	Specifies the RIP version to use when sending update out of a specific interface.
router rip	Enables the RIP routing process and enters router configuration mode for that process.
version	Specifies the version of RIP used globally by the ASA.

rip send version

To specify the RIP version used to send RIP updates on an interface, use the **rip send version** command in interface configuration mode. To restore the defaults, use the **no** form of this command.

rip send version {[**1**] [**2**]}

no rip send version

Syntax Description

1	Specifies RIP Version 1.
2	Specifies RIP Version 2.

Defaults

The ASA sends RIP Version 1 packets.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Interface configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

You can override the global RIP send version setting on a per-interface basis by entering the **rip send version** command on an interface.

If you specify RIP version 2, you can enable neighbor authentication and use MD5-based encryption to authenticate the RIP updates.

Examples

The following example configures the ASA to send and receive RIP Versions 1 and 2 packets on the specified interface:

```
hostname(config)# interface GigabitEthernet0/3
hostname(config-if)# rip send version 1 2
hostname(config-if)# rip receive version 1 2
```

Related Commands

Command	Description
rip receive version	Specifies the RIP version to accept when receiving updates on a specific interface.
router rip	Enables the RIP routing process and enter router configuration mode for that process.
version	Specifies the version of RIP used globally by the ASA.

rmdir

To remove the existing directory, use the **rmdir** command in privileged EXEC mode.

rmdir [**/noconfirm**] [**disk0: | disk1: | flash:**]*path*

Syntax Description

/noconfirm	(Optional) Suppresses the confirmation prompt.
disk0*:*	(Optional) Specifies the nonremovable internal flash memory, followed by a colon.
disk1:	(Optional) Specifies the removable external flash memory card, followed by a colon.
flash:	(Optional) Specifies the nonremovable internal flash, followed by a colon. In the ASA 5500 series adaptive security appliances, the **flash** keyword is aliased to **disk0**.
path	(Optional) The absolute or relative path of the directory to remove.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

If the directory is not empty, the **rmdir** command fails.

Examples

The following example shows how to remove an existing directory named “test”:

```
hostname# rmdir test
```

Related Commands

Command	Description
dir	Displays the directory contents.
mkdir	Creates a new directory.
pwd	Displays the current working directory.
show file	Displays information about the file system.

route

To enter a static or default route for the specified interface, use the **route** command in global configuration mode. To remove routes from the specified interface, use the **no** form of this command.

route *interface_name ip_address netmask gateway_ip* [[*metric*] [**track** *number*] | **tunneled**]

no route *interface_name ip_address netmask gateway_ip* [[*metric*] [**track** *number*] | **tunneled**]

Syntax Description

gateway_ip	Specifies the IP address of the gateway router (the next-hop address for this route). **Note** The *gateway_ip* argument is optional in transparent mode.
interface_name	Specifies the internal or external network interface name through which the traffic is routed.
ip_address	Specifies the internal or external network IP address.
metric	(Optional) Specifies the administrative distance for this route. Valid values range from 1 to 255. The default value is 1.
netmask	Specifies a network mask to apply to *ip_address*.
track *number*	(Optional) Associates a tracking entry with this route. Valid values are from 1 to 500. **Note** The **track** option is only available in single, routed mode.
tunneled	Specifies the route as the default tunnel gateway for VPN traffic.

Defaults

The *metric* default is 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	The **track** *number* value was added.

Usage Guidelines

Use the **route** command to enter a default or static route for an interface. To enter a default route, set *ip_address* and *netmask* to **0.0.0.0,** or use the shortened form of **0**. All routes that are entered using the **route** command are stored in the configuration when it is saved.

You can define a separate default route for tunneled traffic along with the standard default route. When you create a default route with the **tunneled** option, all traffic from a tunnel terminating on the ASA that cannot be routed using learned or static routes, is sent to this route. For traffic emerging from a tunnel, this route overrides over any other configured or learned default routes.

The following restrictions apply to default routes with the **tunneled** option:

- Do not enable unicast RPF (**ip verify reverse-path**) on the egress interface of a tunneled route. Enabling uRPF on the egress interface of a tunneled route causes the session to fail.
- Do not enable TCP intercept on the egress interface of the tunneled route, because the session will fail.
- Do not use the VoIP inspection engines (CTIQBE, H.323, GTP, MGCP, RTSP, SIP, SKINNY), the DNS inspect engine, or the DCE RPC inspection engine with tunneled routes. These inspection engines ignore the tunneled route.

You cannot define more than one default route with the **tunneled** option; ECMP for tunneled traffic is not supported.

Create static routes to access networks that are connected outside a router on any interface. For example, the ASA sends all packets that are destined to the 192.168.42.0 network through the 192.168.1.5 router with the following static **route** command.

```
hostname(config)# route dmz 192.168.42.0 255.255.255.0 192.168.1.5 1
```

After you enter the IP address for each interface, the ASA creates a CONNECT route in the route table. This entry is not deleted when you use the **clear route** or **clear configure route** commands.

If the **route** command uses the IP address from one of the interfaces on the ASA as the gateway IP address, the ASA will ARP for the destination IP address in the packet instead of ARPing for the gateway IP address.

Examples

The following example shows how to specify one default **route** command for an outside interface:

```
hostname(config)# route outside 0 0 209.165.201.1 1
```

The following example shows how to add these static **route** commands to provide access to the networks:

```
hostname(config)# route dmz1 10.1.2.0 255.0.0.0 10.1.1.4 1
hostname(config)# route dmz1 10.1.3.0 255.0.0.0 10.1.1.4 1
```

The following example uses an SLA operation to install a default route to the 10.1.1.1 gateway on the outside interface. The SLA operation monitors the availability of that gateway. If the SLA operation fails, then the backup route on the DMZ interface is used.

```
hostname(config)# sla monitor 123
hostname(config-sla-monitor)# type echo protocol ipIcmpEcho 10.1.1.1 interface outside
hostname(config-sla-monitor-echo)# timeout 1000
hostname(config-sla-monitor-echo)# frequency 3
hostname(config)# sla monitor schedule 123 life forever start-time now
hostname(config)# track 1 rtr 123 reachability
hostname(config)# route outside 0.0.0.0 0.0.0.0 10.1.1.1 track 1
hostname(config)# route dmz 0.0.0.0 0.0.0.0 10.2.1.1 254
```

Related Commands

Command	Description
clear configure route	Removes statically configured **route** commands.
clear route	Removes routes learned through dynamic routing protocols such as RIP.
show route	Displays route information.
show running-config route	Displays configured routes.

route-map

To define the conditions for redistributing routes from one routing protocol into another, use the **route-map** command in global configuration mode. To remove a map, use the **no** form of this command.

route-map *map_tag* [**permit** | **deny**] [*seq_num*]

no route-map *map_tag* [**permit** | **deny**] [*seq_num*]

Syntax Description

deny	(Optional) Specifies that if the match criteria are met for the route map, the route is not redistributed.
map_tag	Text for the route map tag; the text can be up to 57 characters in length.
permit	(Optional) Specifies that if the match criteria is met for this route map, the route is redistributed as controlled by the set actions.
seq_num	(Optional) Route map sequence number; valid values are from 0 to 65535. Indicates the position that a new route map will have in the list of route maps already configured with the same name.

Defaults

The defaults are as follows:

- **permit.**
- If you do not specify a *seq_num*, a *seq_num* of 10 is assigned to the first route map.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

The **route-map** command lets you redistribute routes.

The **route-map** global configuration command and the **match** and **set** configuration commands define the conditions for redistributing routes from one routing protocol into another. Each **route-map** command has **match** and **set** commands that are associated with it. The **match** commands specify the match criteria that are the conditions under which redistribution is allowed for the current **route-map** command. The **set** commands specify the set actions, which are the redistribution actions to perform if the criteria enforced by the **match** commands are met. The **no route-map** command deletes the route map.

The **match route-map** configuration command has multiple formats. You can enter the **match** commands in any order, and all **match** commands must pass to cause the route to be redistributed according to the set actions given with the **set** commands. The **no** form of the **match** commands removes the specified match criteria.

Use route maps when you want detailed control over how routes are redistributed between routing processes. You specify the destination routing protocol with the **router ospf** global configuration command. You specify the source routing protocol with the **redistribute** router configuration command.

When you pass routes through a route map, a route map can have several parts. Any route that does not match at least one match clause relating to a **route-map** command is ignored; the route is not advertised for outbound route maps and is not accepted for inbound route maps. To modify only some data, you must configure a second route map section with an explicit match specified.

The *seq_number* argument is as follows:

1. If you do not define an entry with the supplied tag, an entry is created with the *seq_number* argument set to 10.
2. If you define only one entry with the supplied tag, that entry becomes the default entry for the following **route-map** command. The *seq_number* argument of this entry is unchanged.
3. If you define more than one entry with the supplied tag, an error message is printed to indicate that the *seq_number* argument is required.

If the **no route-map** *map-tag* command is specified (with no *seq-num* argument), the whole route map is deleted (all **route-map** entries with the same *map-tag* text).

If the match criteria are not met, and you specify the **permit** keyword, the next route map with the same *map_tag* is tested. If a route passes none of the match criteria for the set of route maps sharing the same name, it is not redistributed by that set.

Examples

The following example shows how to configure a route map in OSPF routing:

```
hostname(config)# route-map maptag1 permit 8
hostname(config-route-map)# set metric 5
hostname(config-route-map)# match metric 5
hostname(config-route-map)# show running-config route-map
route-map maptag1 permit 8
    set metric 5
    match metric 5
hostname(config-route-map)# exit
hostname(config)#
```

Related Commands

Command	Description
clear configure route-map	Removes the conditions for redistributing the routes from one routing protocol into another routing protocol.
match interface	Distributes distribute any routes that have their next hop out one of the interfaces specified,
router ospf	Starts and configures an OSPF routing process.
set metric	Specifies the metric value in the destination routing protocol for a route map.
show running-config route-map	Displays the information about the route map configuration.

router-alert

To define an action when the Router Alert IP option occurs in a packet with IP Options inspection, use the **router-alert** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

router-alert action {allow | clear}

no router-alert action {allow | clear}

Syntax Description

allow	Instructs the ASA to allow a packet containing the Router Alert IP option to pass.
clear	Instructs the ASA to clear the Router Alert IP option from a packet and then allow the packet to pass.

Defaults

By default, IP Options inspection, drops packets containing the Router Alert IP option.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
8.2(2)	This command was introduced.

Usage Guidelines

This command can be configured in an IP Options inspection policy map.

You can configure IP Options inspection to control which IP packets with specific IP options are allowed through the ASA. Configuring this inspection instructs the ASA to allow a packet to pass or to clear the specified IP options and then allow the packet to pass.

The Router Alert (RTRALT) or IP Option 20 notifies transit routers to inspect the contents of the packet even when the packet is not destined for that router. This inspection is valuable when implementing RSVP and similar protocols require relatively complex processing from the routers along the packets delivery path.

Examples

The following example shows how to set up an action for protocol violation in a policy map:

```
hostname(config)# policy-map type inspect ip-options ip-options_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# eool action allow
hostname(config-pmap-p)# nop action allow
```

```
hostname(config-pmap-p)# router-alert action allow
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

router-id

To use a fixed router ID, use the **router-id** command in router configuration mode for OSPFv2 or IPv6 router configuration mode for OSPFv3. To reset OSPF to use the previous router ID behavior, use the **no** form of this command.

router-id *id*

no router-id [*id*]

Syntax Description

id	Specifies the router ID in IP address format.

Defaults

If not specified, the highest-level IP address on the ASA is used as the router ID.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	•	—
IPv6 router configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.0(2)	The processing order for this command was changed. The command is now processed before the **network** commands in an OSPFv2 configuration.
9.0(1)	Multiple context mode and OSPFv3 are supported.

Usage Guidelines

By default, the ASA uses the highest-level IP address on an interface that is covered by a **network** command in the OSPF configuration. If the highest-level IP address is a private address, then that address is sent in hello packets and database definitions. To use a specific router ID, use the **router-id** command to specify a global address for the router ID.

Router IDs must be unique within an OSPF routing domain. If two routers in the same OSPF domain are using the same router ID, routing may not work correctly.

You should enter the **router-id** command before entering **network** commands in an OSPF configuration. This prevents possible conflicts with the default router ID generated by the ASA. If you do have a conflict, you will receive the message:

```
ERROR: router-id id in use by ospf process pid
```

To enter the conflicting ID, remove the **network** command that contains the IP address causing the conflict, enter the **router-id** command, and then re-enter the **network** command.

Clustering

In Layer 2 clustering, you either need to configure the **router-id** *id* command or leave the router ID blank, provided all units receive the same router ID.

Examples

The following example sets the router ID to 192.168.1.1:

```
hostname(config-rtr)# router-id 192.168.1.1
hostname(config-rtr)#
```

Related Commands

Command	Description
router ospf	Enters router configuration mode.
show ospf	Displays general information about the OSPFv2 routing processes.

router-id cluster-pool

To specify the router ID cluster pool for a Layer 3 clustering deployment, use the **router-id cluster-pool** command in router configuration mode for OSPFv2 or IPv6 router configuration mode for OSPFv3.

router-id cluster-pool hostname | A.B.C.D *ip_pool*

Syntax Description

cluster-pool	Enables configuration of an IP address pool when Layer 3 clustering is configured.
hostname | A.B.C.D	Specifies the OSPF router ID for this OSPF process.
ip_pool	Specifies the name of the IP address pool.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	—	—
IPv6 router configuration	•	—	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Router IDs must be unique within an OSPFv2 or OSPFv3 routing domain in clustering. If two routers in the same OSPFv2 or OSPFv3 domain are using the same router ID, routing in clustering may not work correctly.

In Layer 2 clustering, you either need to configure the **router-id** *id* command or leave the router ID blank, provided all units receive the same router ID.

When a Layer 3 cluster interface is configured, each unit must have a unique interface IP address. To make sure that each unit has a unique interface IP address, you can configure a local pool of IP addresses for OSPFv2 or OSPFv3 with the **router-id cluster-pool** command.

Examples

The following example shows how to configure an IP address pool when Layer 3 clustering is configured for OSPFv2:

```
hostname(config)# ip local pool rpool 1.1.1.1-1.1.1.4
hostname(config)# router ospf 1
hostname(config-rtr)# router-id cluster-pool rpool
hostname(config-rtr)# network 17.5.0.0 255.255.0.0 area 1
```

```
hostname(config-rtr)# log-adj-changes
```

The following example shows how to configure an IP address pool when Layer 3 clustering is configured for OSPFv3:

```
hostname(config)# ipv6 router ospf 2
hostname(config-rtr)# router-id cluster-pool rpool
hostname(config-rtr)# interface gigabitEthernet0/0
hostname(config-rtr)# nameif inside
hostname(config-rtr)# security-level 0
hostname(config-rtr)# ip address 17.5.33.1 255.255.0.0 cluster-pool inside_pool
hostname(config-rtr)# ipv6 address 8888::1/64 cluster-pool p6
hostname(config-rtr)# ipv6 nd suppress-ra
hostname(config-rtr)# ipv6 ospf 2 area 0.0.0.0
```

Related Commands

Command	Description
ipv6 router ospf	Enters IPv6 router configuration mode.
router ospf	Enters router configuration mode.
show ipv6 ospf	Displays general information about the OSPFv3 routing processes.
show ospf	Displays general information about the OSPFv2 routing processes.

router eigrp

To start an EIGRP routing process and configure parameters for that process, use the **router eigrp** command in global configuration mode. To disable EIGRP routing, use the **no** form of this command.

router eigrp *as-number*

no router eigrp *as-number*

Syntax Description

as-number	Autonomous system number that identifies the routes to the other EIGRP routers. It is also used to tag the routing information. Valid values are from 1 to 65535.

Defaults

EIGRP routing is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

The **router eigrp** command creates an EIGRP routing process or enters router configuration mode for an existing EIGRP routing process. You can only create a single EIGRP routing process on the ASA.

Use the following router configuration mode commands to configure the EIGRP routing processes:

- **auto-summary**—Enable/disable automatic route summarization.
- **default-information**—Enable/disable the reception and sending of default route information.
- **default-metric**—Define the default metrics for routes redistributed into the EIGRP routing process.
- **distance eigrp**—Configure the administrative distance for internal and external EIGRP routes.
- **distribute-list**—Filter the networks received and sent in routing updates.
- **eigrp log-neighbor-changes**—Enable/disable the logging of neighbor state changes.
- **eigrp log-neighbor-warnings**—Enable/disable the logging of neighbor warning messages.
- **eigrp router-id**—Creates a fixed router ID.
- **eigrp stub**—Configures the ASA for stub EIGRP routing.
- **neighbor**—Statically define an EIGRP neighbor.

- **network**—Configure the networks that participate in the EIGRP routing process.
- **passive-interface**—Configure an interface to act as a passive interface.
- **redistribute**—Redistribute routes from other routing processes into EIGRP.

Use the following interface configuration mode commands to configure interface-specific EIGRP parameters:

- **authentication key eigrp**—Define the authentication key used for EIGRP message authentication.
- **authentication mode eigrp**—Define the authentication algorithm used for EIGRP message authentication.
- **delay**—Configure the delay metric for an interface.
- **hello-interval eigrp**—Change the interval at which EIGRP hello packets are sent out of an interface.
- **hold-time eigrp**—Change the hold time advertised by the ASA.
- **split-horizon eigrp**—Enable/disable EIGRP split-horizon on an interface.
- **summary-address eigrp**—Manually define a summary address.

Examples

The following example shows how to enter the configuration mode for the EIGRP routing process with the autonomous system number 100:

```
hostname(config)# router eigrp 100
hostname(config-rtr)#
```

Related Commands

Command	Description
clear configure eigrp	Clears the EIGRP router configuration mode commands from the running configuration.
show running-config router eigrp	Displays the EIGRP router configuration mode commands in the running configuration.

router ospf

To start an OSPF routing process and configure parameters for that process, use the **router ospf** command in global configuration mode. To disable OSPF routing, use the **no** form of this command.

router ospf *pid*

no router ospf *pid*

Syntax Description

pid	Internally used identification parameter for an OSPF routing process; valid values are from 1 to 65535. The *pid* does not need to match the ID of OSPF processes on other routers.

Defaults

OSPF routing is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

The **router ospf** command is the global configuration command for OSPF routing processes running on the ASA. Once you enter the **router ospf** command, the command prompt appears as (config-router)#, indicating that you are in router configuration mode.

When using the **no router ospf** command, you do not need to specify optional arguments unless they provide necessary information. The **no router ospf** command terminates the OSPF routing process specified by its *pid.* You assign the *pid* locally on the ASA. You must assign a unique value for each OSPF routing process.

The **router ospf** command is used with the following OSPF-specific commands to configure OSPF routing processes:

- **area**—Configures a regular OSPF area.
- **compatible rfc1583**—Restores the method used to calculate summary route costs per RFC 1583.
- **default-information originate**—Generates a default external route into an OSPF routing domain.
- **distance**—Defines the OSPF route administrative distances based on the route type.

- **ignore**—Suppresses the sending of syslog messages when the router receives a link-state advertisement (LSA) for type 6 Multicast OSPF (MOSPF) packets.
- **log-adj-changes**—Configures the router to send a syslog message when an OSPF neighbor goes up or down.
- **neighbor**—Specifies a neighbor router. Used to allow adjacency to be established over VPN tunnels.
- **network**—Defines the interfaces on which OSPF runs and the area ID for those interfaces.
- **redistribute**—Configures the redistribution of routes from one routing domain to another according to the parameters specified.
- **router-id**—Creates a fixed router ID.
- **summary-address**—Creates the aggregate addresses for OSPF.
- **timers lsa-group-pacing**—OSPF LSA group pacing timer (interval between group of LSA being refreshed or max-aged).
- **timers spf**—Delay between receiving a change to the SPF calculation.

Examples

The following example shows how to enter the configuration mode for the OSPF routing process numbered 5:

```
hostname(config)# router ospf 5
hostname(config-rtr)#
```

Related Commands

Command	Description
clear configure router	Clears the OSPF router commands from the running configuration.
show running-config router ospf	Displays the OSPF router commands in the running configuration.

router rip

To start a RIP routing process and configure parameters for that process, use the **router rip** command in global configuration mode. To disable the RIP routing process, use the **no** form of this command.

router rip

no router rip

Syntax Description

This command has no arguments or keywords.

Defaults

RIP routing is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

The **router rip** command is the global configuration command for configuring the RIP routing processes on the ASA. You can only configure one RIP process on the ASA. The **no router rip** command terminates the RIP routing process and removes all router configuration for that process.

When you enter the **router rip** command, the command prompt changes to hostname(config-router)#, indicating that you are in router configuration mode.

The **router rip** command is used with the following router configuration commands to configure RIP routing processes:

- **auto-summary**—Enable/disable automatic summarization of routes.
- **default-information originate**—Distribute a default route.
- **distribute-list in**—Filter networks in incoming routing updates.
- **distribute-list out**—Filter networks in outgoing routing updates.
- **network**—Add/remove interfaces from the routing process.
- **passive-interface**—Set specific interfaces to passive mode.
- **redistribute**—Redistribute routes from other routing processes into the RIP routing process.
- **version**—Set the RIP protocol version used by the ASA.

Additionally, you can use the following commands in interface configuration mode to configure RIP properties on a per-interface basis:

- **rip authentication key**—Set an authentication key.
- **rip authentication mode**—Set the type of authentication used by RIP Version 2.
- **rip send version**—Set the version of RIP used to send updates out of the interface. This overrides the version set in global router configuration mode, if any.
- **rip receive version**—Set the version of RIP accepted by the interface. This overrides the version set in global router configuration mode, if any.

RIP is not supported in transparent mode. By default, the ASA denies all RIP broadcast and multicast packets. To permit these RIP messages to pass through an ASA operating in transparent mode you must define access list entries to permit this traffic. For example, to permit RIP version 2 traffic through the ASA, create an access list entry such as the following:

```
hostname(config)# access-list myriplist extended permit ip any host 224.0.0.9
```

To permit RIP version 1 broadcasts, create an access list entry such as the following:

```
hostname(config)# access-list myriplist extended permit udp any any eq rip
```

Apply these access list entries to the appropriate interface using the **access-group** command.

You can enable both RIP and OSPF routing on the ASA at the same time.

Examples

The following example shows how to enter the configuration mode for the OSPF routing process numbered 5:

```
hostname(config)# router rip
hostname(config-rtr)# network 10.0.0.0
hostname(config-rtr)# version 2
```

Related Commands

Command	Description
clear configure router rip	Clears the RIP router commands from the running configuration.
show running-config router rip	Displays the RIP router commands in the running configuration.

rtp-conformance

To check RTP packets flowing on the pinholes for protocol conformance in H.323 and SIP, use the **rtp-conformance** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

rtp-conformance [enforce-payloadtype]

no rtp-conformance [enforce-payloadtype]

Syntax Description

enforce-payloadtype	Enforces payload type to be audio/video based on the signaling exchange.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to check RTP packets flowing on the pinholes for protocol conformance on an H.323 call:

```
hostname(config)# policy-map type inspect h323 h323_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# rtp-conformance
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
debug rtp	Displays debug information and error messages for RTP packets associated with H.323 and SIP inspection.
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

rtp-min-port rtp-max-port

To configure the rtp-min-port and rtp-max-port limits for the phone proxy feature, use the **rtp-min-port** *port1* **rtp-max-port** *port2* command in phone-proxy configuration mode.

To remove the rtp-min-port and rtp-max-port limits from the phone proxy configuration, use the **no** form of this command.

rtp-min-port *port1* **rtp-maxport** *port2*

no rtp-min-port *port1* **rtp-maxport** *port2*

Syntax Description

port1	Specifies the minimum value for the RTP port range for the media termination point, where *port1* can be a value from 1024 to 16384.
port2	Specifies the maximum value for the RTP port range for the media termination point, where *port2* can be a value from 32767 to 65535.

Defaults

By default, the *port1* value for the **rtp-min-port** keyword is 16384 and the *port2* value for the **rtp-max-port** keyword is 32767.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Phone-proxy configuration	•	—	•	—	—

Command History

Release	Modification
8.2(1)	The command was introduced.

Usage Guidelines

Configure the RTP port range for the media termination point when you need to scale the number of calls that the Phone Proxy supports.

Examples

The following example shows the use of the **media-termination address** command to specify the IP address to use for media connections:

```
hostname(config-phone-proxy)# rtp-min-port 2001 rtp-maxport 32770
```

Related Commands

Command	Description
phone-proxy	Configures the Phone Proxy instance.

CHAPTER 43

same-security-traffic through shape Commands

same-security-traffic

To permit communication between interfaces with equal security levels, or to allow traffic to enter and exit the same interface, use the **same-security-traffic** command in global configuration mode. To disable the same-security traffic, use the **no** form of this command.

same-security-traffic permit {**inter-interface** | **intra-interface**}

no same-security-traffic permit {**inter-interface** | **intra-interface**}

Syntax Description

inter-interface	Permits communication between different interfaces that have the same security level.
intra-interface	Permits communication in and out of the same interface.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	The **intra-interface** keyword now allows all traffic to enter and exit the same interface, and not just IPsec traffic.

Usage Guidelines

Allowing communication between same security interfaces (enabled by the **same-security-traffic inter-interface** command) provides the following benefits:

- You can configure more than 101 communicating interfaces. If you use different levels for each interface, you can configure only one interface per level (0 to 100).
- You can allow traffic to flow freely between all same security interfaces without access lists.

The **same-security-traffic intra-interface** command lets traffic enter and exit the same interface, which is normally not allowed. This feature might be useful for VPN traffic that enters an interface, but is then routed out the same interface. The VPN traffic might be unencrypted in this case, or it might be reencrypted for another VPN connection. For example, if you have a hub and spoke VPN network, where the ASA is the hub, and remote VPN networks are spokes, for one spoke to communicate with another spoke, traffic must go into the ASA and then out again to the other spoke.

Note All traffic allowed by the **same-security-traffic intra-interface** command is still subject to firewall rules. Be careful not to create an asymmetric routing situation that can cause return traffic not to traverse the ASA.

Examples

The following example shows how to enable the same-security interface communication:

```
hostname(config)# same-security-traffic permit inter-interface
```

The following example shows how to enable traffic to enter and exit the same interface:

```
hostname(config)# same-security-traffic permit intra-interface
```

Related Commands

Command	Description
show running-config same-security-traffic	Displays the **same-security-traffic** configuration.

sasl-mechanism

To specify a SASL (Simple Authentication and Security Layer) mechanism for authenticating an LDAP client to an LDAP server, use the **sasl-mechanism** command in aaa-server host configuration mode. The SASL authentication mechanism options are **digest-md5** and **kerberos**.

To disable an authentication mechanism, use the **no** form of this command.

sasl-mechanism {**digest-md5** | **kerberos** *server-group-name*}

no sasl-mechanism {**digest-md5** | **kerberos** *server-group-name*}

Note Because the ASA serves as a client proxy to the LDAP server for VPN users, the LDAP client referred to here is the ASA.

Syntax Description

digest-md5	The ASA responds with an MD5 value computed from the username and password.
kerberos	The ASA responds by sending the username and realm using the GSSAPI (Generic Security Services Application Programming Interface) Kerberos mechanism.
server-group-name	Specifies the Kerberos aaa-server group, up to 64 characters.

Defaults

No default behavior or values. The ASA passes the authentication parameters to the LDAP server in plain text.

Note We recommend that you secure LDAP communications with SSL using the **ldap-over-ssl** command if you have not configured SASL.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
aaa-server host configuration	•	•	•	•	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

Use this command to specify ASA authentication to an LDAP server using SASL mechanisms.

Both the ASA and the LDAP server can support multiple SASL authentication mechanisms. When negotiating SASL authentication, the ASA retrieves the list of SASL mechanisms configured on the server and sets the authentication mechanism to the strongest mechanism configured on both the ASA and the server. The Kerberos mechanism is stronger than the Digest-MD5 mechanism. To illustrate, if both the LDAP server and the ASA support both mechanisms, the ASA selects Kerberos, the stronger of the mechanisms.

When disabling the SASL mechanisms, you must enter a separate **no** command for each mechanism you want to disable because they are configured independently. Mechanisms that you do not specifically disable remain in effect. For example, you must enter both of the following commands to disable both SASL mechanisms:

no sasl-mechanism digest-md5

no sasl-mechanism kerberos <*server-group-name*>

Examples

The following examples, entered in aaa-server host configuration mode, enable the SASL mechanisms for authentication to an LDAP server named ldapsvr1 with an IP address of 10.10.0.1. This example enables the SASL digest-md5 authentication mechanism:

```
hostname(config)# aaa-server ldapsvr1 protocol ldap
hostname(config-aaa-server-group)# aaa-server ldapsvr1 host 10.10.0.1
hostname(config-aaa-server-host)# sasl-mechanism digest-md5
```

The following example enables the SASL Kerberos authentication mechanism and specifies kerb-servr1 as the Kerberos AAA server:

```
hostname(config)# aaa-server ldapsvr1 protocol ldap
hostname(config-aaa-server-group)# aaa-server ldapsvr1 host 10.10.0.1
hostname(config-aaa-server-host)# sasl-mechanism kerberos kerbsvr1
```

Related Commands

Command	Description
ldap-over-ssl	Specifies that SSL secures the LDAP client-server connection.
server-type	Specifies the LDAP server vendor as either Microsoft or Sun.
ldap attribute-map (global configuration mode)	Creates and names an LDAP attribute map for mapping user-defined attribute names to Cisco LDAP attribute names.

sast

To specify the number of SAST certificates to create in the CTL record, use the **sast** command in ctl-file configuration mode. To set the number of SAST certificates in the CTL file back to the default value of 2, use the **no** form of this command.

sast *number_sasts*

no sast *number_sasts*

Syntax Description

number_sasts	Specifies the number of SAST keys to create. The default is 2. maximum allowed is 5.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ctl-file configuration	•	—	•	—	—

Command History

Release	Modification
8.0(4)	The command was introduced.

Usage Guidelines

CTL files are signed by a System Administrator Security Token (SAST).

Because the Phone Proxy generates the CTL file, it needs to create the SAST key to sign the CTL file itself. This key can be generated on the ASA. A SAST is created as a self-signed certificate.

Typically, a CTL file contains more than one SAST. In case a SAST is not recoverable, the other one can be used to sign the file later.

Examples

The following example shows the use of the **sast** command to create 5 SAST certificates in the CTL file:

```
hostname(config-ctl-file)# sast 5
```

Related Commands

Command	Description
ctl-file (global)	Specifies the CTL file to create for Phone Proxy configuration or the CTL file to parse from Flash memory.
ctl-file (phone-proxy)	Specifies the CTL file to use for Phone Proxy configuration.
phone-proxy	Configures the Phone Proxy instance.

scansafe

To enable Cloud Web Security inspection for a context, use the **scansafe** command in context configuration mode. To disable Cloud Web Security, use the **no** form of this command.

scansafe [**license** *key*]

no scansafe [**license** *key*]

Syntax Description

license *key*	Enters an authentication key for this context. If you do not specify a key, the context uses the license configured in the system configuration. The ASA sends the authentication key to the Cloud Web Security proxy servers to indicate from which organization the request comes. The authentication key is a 16-byte hexidecimal number.

Command Default

By default, the context uses the license entered in the system configuration.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

In multiple context mode, you must allow Cloud Web Security per context.

Examples

The following sample configuration enables Cloud Web Security in context one with the default license and in context two with the license key override:

```
! System Context
!
scansafe general-options
server primary ip 180.24.0.62 port 8080
retry-count 5
license 366C1D3F5CE67D33D3E9ACEC265261E5
!
context one
 allocate-interface GigabitEthernet0/0.1
 allocate-interface GigabitEthernet0/1.1
 allocate-interface GigabitEthernet0/3.1
 scansafe
```

```
 config-url disk0:/one_ctx.cfg
!
context two
 allocate-interface GigabitEthernet0/0.2
 allocate-interface GigabitEthernet0/1.2
 allocate-interface GigabitEthernet0/3.2
 scansafe license 366C1D3F5CE67D33D3E9ACEC26789534
 config-url disk0:/two_ctx.cfg
!
```

Related Commands

Command	Description
class-map type inspect scansafe	Creates an inspection class map for whitelisted users and groups.
default user group	Specifies the default username and/or group if the ASA cannot determine the identity of the user coming into the ASA.
http[**s**] (parameters)	Specifies the service type for the inspection policy map, either HTTP or HTTPS.
inspect scansafe	Enables Cloud Web Security inspection on the traffic in a class.
license	Configures the authentication key that the ASA sends to the Cloud Web Security proxy servers to indicate from which organization the request comes.
match user group	Matches a user or group for a whitelist.
policy-map type inspect scansafe	Creates an inspection policy map so you can configure essential parameters for the rule and also optionally identify the whitelist.
retry-count	Enters the retry counter value, which is the amount of time that the ASA waits before polling the Cloud Web Security proxy server to check its availability.
scansafe general-options	Configures general Cloud Web Security server options.
server {**primary** | **backup**}	Configures the fully qualified domain name or IP address of the primary or backup Cloud Web Security proxy servers.
show conn scansafe	Shows all Cloud Web Security connections, as noted by the capitol Z flag.
show scansafe server	Shows the status of the server, whether it's the current active server, the backup server, or unreachable.
show scansafe statistics	Shows total and current http connections.
user-identity monitor	Downloads the specified user or group information from the AD agent.
whitelist	Performs the whitelist action on the class of traffic.

scansafe general-options

To configure communication with the Cloud Web Security proxy server, use the **scansafe general-options** command in global configuration mode. To remove the server configuration, use the **no** form of this command.

scansafe general-options

no scansafe general-options

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

You can configure a primary and backup proxy server for Cloud Web Security.

Examples

The following example configures a primary server:

```
scansafe general-options
 server primary ip 180.24.0.62 port 8080
 retry-count 5
 license 366C1D3F5CE67D33D3E9ACEC265261E5
```

Related Commands

Command	Description
class-map type inspect scansafe	Creates an inspection class map for whitelisted users and groups.
default user group	Specifies the default username and/or group if the ASA cannot determine the identity of the user coming into the ASA.
http[**s**] (parameters)	Specifies the service type for the inspection policy map, either HTTP or HTTPS.

Command	Description
inspect scansafe	Enables Cloud Web Security inspection on the traffic in a class.
license	Configures the authentication key that the ASA sends to the Cloud Web Security proxy servers to indicate from which organization the request comes.
match user group	Matches a user or group for a whitelist.
policy-map type inspect scansafe	Creates an inspection policy map so you can configure essential parameters for the rule and also optionally identify the whitelist.
retry-count	Enters the retry counter value, which is the amount of time that the ASA waits before polling the Cloud Web Security proxy server to check its availability.
scansafe	In multiple context mode, allows Cloud Web Security per context.
server {**primary** | **backup**}	Configures the fully qualified domain name or IP address of the primary or backup Cloud Web Security proxy servers.
show conn scansafe	Shows all Cloud Web Security connections, as noted by the capitol Z flag.
show scansafe server	Shows the status of the server, whether it's the current active server, the backup server, or unreachable.
show scansafe statistics	Shows total and current http connections.
user-identity monitor	Downloads the specified user or group information from the AD agent.
whitelist	Performs the whitelist action on the class of traffic.

scep-enrollment enable

To enable or disable the Simple Certificate Enrollment Protocol for a tunnel group, use the **scep-enrollment enable** command in tunnel-group general-attributes mode.

To remove the command from the configuration, use the **no** form of this command.

scep-enrollment enable

no scep-enrollment enable

Syntax Description

This command has no arguments or keywords.

Defaults

By default, this command is not present in the tunnel group configuration.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tunnel-group general-attributes configuration	•	—	•	—	—

Command History

Release	Modification
8.4(1)	This command was introduced.

Usage Guidelines

Only the Cisco AnyConnect Secure Mobility Client, Release 3.0 and later, supports this feature.

The ASA can proxy SCEP requests between AnyConnect and a third-party certificate authority. The certificate authority only needs to be accessible to the ASA if it is acting as the proxy. For the ASA to provide this service, the user must authenticate using any of the methods supported by AAA before the ASA sends an enrollment request. You can also use Host Scan and dynamic access policies to enforce rules of eligibility to enroll.

The ASA supports this feature only with an AnyConnect SSL or IKEv2 VPN session. It supports all SCEP-compliant certificate authorities, including IOS CS, Windows Server 2003 CA, and Windows Server 2008 CA.

Clientless (browser-based) access does not support SCEP Proxy, although WebLaunch—clientless-initiated AnyConnect—does support it.

The ASA does not support polling for certificates.

The ASA supports load balancing for this feature.

Example

The following example, entered in global configuration mode, creates a remote access tunnel group named remotegrp and enables SCEP for the group policy:

```
hostname(config)# tunnel-group remotegrp type remote-access
hostname(config)# tunnel-group remotegrp general-attributes
hostname(config-tunnel-general)# scep-enrollment enable
INFO: 'authentication aaa certificate' must be configured to complete setup of this
option.
```

Related Commands

Command	Description
crypto ikev2 enable	Enables IKEv2 negotiation on the interface on which IPsec peers communicate.
scep-forwarding-url	Enrolls the SCEP certificate authority for the group policy.
secondary-pre-fill-username clientless	Supplies a common, secondary password when a certificate is unavailable for WebLaunch support of the SCEP proxy.
secondary-authentication-server-group	Supplies the username when a certificate is unavailable.

scep-forwarding-url

To enroll an SCEP certificate authority for a group policy, use the **scep-forwarding-url** command in group-policy configuration mode.

To remove the command from the configuration, use the **no** form of this command.

scep-forwarding-url {**none** | **value** [*URL*]}

no scep-forwarding-url

Syntax Description

none	Specifies no certificate authority for the group policy.
URL	Specifies the SCEP URL of the certificate authority.
value	Enables this feature for clientless connections.

Defaults

By default, this command is not present.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy configuration	•	—	•	—	—

Command History

Release	Modification
8.4(1)	This command was introduced.

Usage Guidelines

Enter this command once per group policy to support a third-party digital certificate.

Example

The following example, entered in global configuration mode, creates a group policy named FirstGroup and enrolls a certificate authority for the group policy:

```
hostname(config)# group-policy FirstGroup internal
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# scep-forwarding-url value http://ca.example.com:80/
Attempting to retrieve the CA/RA certificate(s) using the URL. Please wait ...
```

Related Commands

Command	Description
crypto ikev2 enable	Enables IKEv2 negotiation on the interface on which IPsec peers communicate.
scep-enrollment enable	Enables Simple Certificate Enrollment Protocol for a tunnel group.
secondary-pre-fill-username clientless	Supplies a common, secondary password when a certificate is unavailable for WebLaunch support of the SCEP proxy.
secondary-authentication-server-group	Supplies the username when a certificate is unavailable.

secondary

To give the secondary unit higher priority in a failover group, use the **secondary** command in failover group configuration mode. To restore the default, use the **no** form of this command.

secondary

no secondary

Syntax Description

This command has no arguments or keywords.

Defaults

If **primary** or **secondary** is not specified for a failover group, the failover group defaults to **primary**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Failover group configuration	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Assigning a primary or secondary priority to a failover group specifies which unit the failover group becomes active on when both units boot simulataneously (within a unit polltime). If one unit boots before the other, then both failover groups become active on that unit. When the other unit comes online, any failover groups that have the second unit as a priority do not become active on the second unit unless the failover group is configured with the **preempt** command or is manually forced to the other unit with the **no failover active** command.

Examples

The following example configures failover group 1 with the primary unit as the higher priority and failover group 2 with the secondary unit as the higher priority. Both failover groups are configured with the **preempt** command, so the groups will automatically become active on their preferred unit as the units become available.

```
hostname(config)# failover group 1
hostname(config-fover-group)# primary
hostname(config-fover-group)# preempt 100
hostname(config-fover-group)# exit
hostname(config)# failover group 2
hostname(config-fover-group)# secondary
hostname(config-fover-group)# preempt 100
hostname(config-fover-group)# mac-address e1 0000.a000.a011 0000.a000.a012
hostname(config-fover-group)# exit
```

```
hostname(config)#
```

Related Commands

Command	Description
failover group	Defines a failover group for Active/Active failover.
preempt	Forces the failover group to become active on its preferred unit when the unit becomes available.
primary	Gives the primary unit a higher priority than the secondary unit.

secondary-authentication-server-group

To specify a secondary authentication server group to associate with the session when double authentication is enabled, use the **secondary-authentication-server-group** command in tunnel-group general-attributes mode. To remove the attribute from the configuration, use the **no** form of this command.

secondary-authentication-server-group [*interface_name*] {**none | LOCAL |** *groupname* [**LOCAL**]} [**use-primary-username**] }

no secondary-authentication-server-group

Syntax Description

interface_name	(Optional) Specifies the interface where the IPsec tunnel terminates.
LOCAL	(Optional) Requires authentication against the local user database if all of the servers in the server group have been deactivated due to communication failures. If the server group name is either **LOCAL** or **NONE,** do not use the **LOCAL** keyword here.
none	(Optional) Specifies the server group name as **NONE**, indicating that authentication is not required.
groupname [**LOCAL**]	Identifies the previously configured authentication server or group of servers. Optionally, this can be the LOCAL group.
use-primary-username	Use the primary username as the username for the secondary authentication.

Defaults

The default value is **none**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tunnel-group general-attributes configuration	•	—	•	—	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

This command is meaningful only when double authentication is enabled. The **secondary-authentication-server-group** command specifies the secondary AAA server group. The secondary server group cannot be an SDI server group.

If the use-primary-username keyword is configured, then only one username is requested in the login dialog.

If the usernames are extracted from a digital certificate, only the primary username is used for authentication.

Examples

The following example, entered in global configuration mode, creates a remote access tunnel group named remotegrp and specifies the use of the group sdi_server as the primary server group and the group ldap_ server as the secondary authentication server group for the connection:

```
hostname(config)# tunnel-group remotegrp type remote-access
hostname(config)# tunnel-group remotegrp general-attributes
hostname(config-tunnel-webvpn)# authentication-server-group sdi_server
hostname(config-tunnel-webvpn)# secondary-authentication-server-group ldap_server
hostname(config-tunnel-webvpn)#
```

Related Commands

Command	Description
pre-fill-username	Enables the pre-fill username feature.
show running-config tunnel-group	Shows the indicated tunnel-group configuration.
tunnel-group general-attributes	Specifies the general attributes for the named tunnel-group.
username-from-certificate	Specifies the field in a certificate to use as the username for authorization.

secondary-color

To set a secondary color for the WebVPN login, home page, and file access page, use the **secondary-color** command in webvpn mode. To remove a color from the configuration and reset the default, use the **no** form of this command.

secondary-color [*color***]**

no secondary-color

Syntax Description

color	(Optional) Specifies the color. You can use a comma separated RGB value, an HTML color value, or the name of the color if recognized in HTML. • RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma separated entry indicates the level of intensity of each color to combine with the others. • HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue. • Name length maximum is 32 characters

Defaults

The default secondary color is HTML #CCCCFF, a lavender shade.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The number of RGB values recommended for use is 216, many fewer than the mathematical possibilities. Many displays can handle only 256 colors, and 40 of those look differently on MACs and PCs. For best results, check published RGB tables. To find RGB tables online, enter RGB in a search engine.

Examples

The following example shows how to set an HTML color value of #5F9EAO, which is a teal shade:

```
hostname(config)# webvpn
hostname(config-webvpn)# secondary-color #5F9EAO
```

Related Commands

Command	Description
title-color	Sets a color for the WebVPN title bar on the login, home page, and file access page

secondary-pre-fill-username

To enable the extraction of a username from a client certificate for use in double authentication for a clientless or an AnyConnect connection, use the **secondary-pre-fill-username** command in tunnel-group webvpn-attributes mode. To remove the attribute from the configuration, use the **no** form of this command.

secondary-pre-fill-username {**clientless** | **ssl-client**} [**hide**]

secondary-pre-fill-username {**clientless** | **ssl-client**} **hide** [**use-primary-password** | **use-common-password** [*type_num*] *password*]

no secondary-no pre-fill-username

Syntax Description

clientless	Enables this feature for clientless connections.
hide	Hides the username to be used for authentication from the VPN user.
password	Enter the password string.
ssl-client	Enables this feature for AnyConnect VPN client connections.
type_num	Enter one of the following options: • 0 if the password to be entered is plain text. • 8 if the password to be entered is encrypted. The password appears as asterisks as you type.
use-common-password	Specifies a common secondary authentication password to use without prompting the user for it.
use-primary-password	Reuses the primary authentication password for secondary authentication without prompting the user for it.

Defaults

This feature is disabled by default. Entering this command without the **hide** keyword reveals the extracted username to the VPN user. The user receives a password prompt if you specify neither the **use-primary-password** nor the **use-common-password** keywords. The default value of *type_num* is 8.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Tunnel-group webvpn-attributes configuration	•	—	•	—	—

Command History

Release	Modification
8.2(1)	This command was introduced.
8.3(2)	Added [**use-primary-password** | **use-common-password** [*type_num*] *password*] to the command.

Usage Guidelines

To enable this feature, you must also enter the **secondary-username-from-certificate** command in tunnel-group general-attributes mode.

This command is meaningful only if double authentication is enabled. The **secondary-pre-fill-username** command enables the use of a username extracted from the certificate field specified in the **secondary-username-from-certificate** command as the username for secondary username/password authentication. To use this secondary-pre-fill username-from-certificate feature, you must configure both commands.

Note Clientless and SSL-client connections are not mutually exclusive options. Only one can be specified per command line, but both can be enabled at the same time.

If you hide the second username and use a primary or common password, the user experience is similar to single authentication. Using the primary or common password makes the use of device certificates to authenticate a device a seamless user experience.

The **use-primary-password** keyword specifies the use of the primary password as the secondary password for all authentications.

The **use-common-password** keyword specifies the use of a common secondary password for all secondary authentications. If a device certificate installed on the endpoint contains a BIOS ID or some other identifier, a secondary authentication request can use the pre-filled BIOS ID as the second username and use a common password configured for all authentications in that tunnel group.

Examples

The following example creates an IPsec remote access tunnel group named remotegrp, and specifies the reuse of a name from the digital certificate on the endpoint as the name to be used for an authentication or authorization query when the connections are browser-based.

```
hostname(config)# tunnel-group remotegrp type ipsec_ra
hostname(config)# tunnel-group remotegrp webvpn-attributes
hostname(config-tunnel-webvpn)# secondary-pre-fill-username clientless
```

The following example performs the same function as the previous command, but hides the extracted username from the user:

```
hostname(config-tunnel-webvpn)# secondary-pre-fill-username clientless hide
```

The following example performs the same function as the previous command, except that it applies only to AnyConnect connections:

```
hostname(config-tunnel-webvpn)# secondary-pre-fill-username ssl-client hide
```

The following example hides the username and reuses the primary authentication password for secondary authentication without prompting the user:

```
hostname(config-tunnel-webvpn)# secondary-pre-fill-username ssl-client hide
use-primary-password
```

The following example hides the username and uses the password you enter for secondary authentication:

```
hostname(config-tunnel-webvpn)# secondary-pre-fill-username ssl-client hide
use-common-password **********
```

Related Commands

Command	Description
pre-fill-username	Enables the pre-fill username feature.
show running-config tunnel-group	Shows the indicated tunnel-group configuration.
tunnel-group general-attributes	Specifies the general attributes for the named tunnel-group.
username-from-certificate	Specifies the field in a certificate to use as the username for authorization.

secondary-text-color

To set the secondary text color for the WebVPN login, home page and file access page, use the **secondary-text-color** command in webvpn mode. To remove the color from the configuration and reset the default, use the **no** form of this command.

secondary-text-color [*black* | *white*]

no secondary-text-color

Syntax Description

auto	Chooses black or white based on the settings for the text-color command. That is, if the primary color is black, this value is white.
black	The default secondary text color is black.
white	You can change the text color to white.

Defaults

The default secondary text color is black.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to set the secondary text color to white:

```
hostname(config)# webvpn
hostname(config-webvpn)# secondary-text-color white
```

Related Commands

Command	Description
text-color	Sets a color for text in the WebVPN title bar on the login, home page and file access page

secure-unit-authentication

To enable secure unit authentication, use the **secure-unit-authentication enable** command in group-policy configuration mode. To disable secure unit authentication, use the **secure-unit-authentication disable** command. To remove the secure unit authentication attribute from the running configuration, use the **no** form of this command. **secure-unit-authentication** {**enable** | **disable**}

no secure-unit-authentication

Syntax Description

disable	Disables secure unit authentication.
enable	Enables secure unit authentication.

Defaults

Secure unit authentication is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Secure unit authentication requires that you have an authentication server group configured for the tunnel group the hardware client(s) use.

If you require secure unit authentication on the primary ASA, be sure to configure it on any backup servers as well.

The **no** option allows inheritance of a value for secure unit authentication from another group policy.

Secure unit authentication provides additional security by requiring VPN hardware clients to authenticate with a username and password each time the client initiates a tunnel. With this feature enabled, the hardware client does not have a saved username and password.

Note With this feature enabled, to bring up a VPN tunnel, a user must be present to enter the username and password.

Examples

The following example shows how to enable secure unit authentication for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# secure-unit-authentication enable
```

Related Commands

Command	Description
ip-phone-bypass	Lets IP phones connect without undergoing user authentication. Secure unit authentication remains in effect.
leap-bypass	Lets LEAP packets from wireless devices behind a VPN hardware client travel across a VPN tunnel prior to user authentication, when enabled. This lets workstations using Cisco wireless access point devices establish LEAP authentication. Then they authenticate again per user authentication.
user-authentication	Requires users behind a hardware client to identify themselves to the ASA before connecting.

secondary-username-from-certificate

To specify the field in a certificate to use as the secondary username for double authentication for a clientless or AnyConnect (SSL-client) connection, use the **secondary-username-from-certificate** command in tunnel-group general-attributes mode.

To remove the attribute from the configuration and restore default values, use the **no** form of this command.

secondary-username-from-certificate {*primary-attr* [*secondary-attr*] | **use-entire-name** | **use-script**}

no secondary-username-from-certificate

Syntax Description

primary-attr	Specifies the attribute to use to derive a username for an authorization query from a certificate. If pre-fill-username is enabled, the derived name can also be used in an authentication query.
secondary-attr	(Optional) Specifies an additional attribute to use with the primary attribute to derive a username for an authentication or authorization query from a digital certificate. If pre-fill-username is enable, the derived name can also be used in an authentication query.
use-entire-name	Specifies that the ASA must use the entire subject DN (RFC1779) to derive a name for an authorization query from a digital certificate.
use-script	Specifies the use of a script file generated by ASDM to extract the DN fields from a certificate for use as a username.

Defaults

This feature is disabled by default and is meaningful only when double authentication is enabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tunnel-group general-attributes configuration	•	—	•	—	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

This command is meaningful only when double authentication is enabled.

When double authentication is enabled. this command selects one or more fields in a certificate to use as the username. The **secondary-username-from-certificate** command forces the security appliance to use the specified certificate field as the second username for the second username/password authentication.

To use this derived username in the pre-fill username from certificate feature for the secondary username/password authentication or authorization, you must also configure the **pre-fill-username** and **secondary-pre-fill-username** commands in tunnel-group webvpn-attributes mode. That is, to use the secondary pre-fill username feature, you must configure both commands.

Possible values for primary and secondary attributes include the following:

Attribute	Definition
C	Country: the two-letter country abbreviation. These codes conform to ISO 3166 country abbreviations.
CN	Common Name: the name of a person, system, or other entity. Not available a s a secondary attribute.
DNQ	Domain Name Qualifier.
EA	E-mail address.
GENQ	Generational Qualifier.
GN	Given Name.
I	Initials.
L	Locality: the city or town where the organization is located.
N	Name.
O	Organization: the name of the company, institution, agency, association or other entity.
OU	Organizational Unit: the subgroup within the organization (O).
SER	Serial Number.
SN	Surname.
SP	State/Province: the state or province where the organization is located
T	Title.
UID	User Identifier.
UPN	User Principal Name.
use-entire-name	Use entire DN name. Not available a s a secondary attribute.
use-script	Use a script file generated by ASDM.

Note If you also specify the **secondary-authentication-server-group** command, along with the **secondary-username-from-certificate command, only** the primary username is used for authentication.

Examples

The following example, entered in global configuration mode, creates a remote access tunnel group named remotegrp and specifies the use of CN (Common Name) as the primary attribute and OU as the secondary attribute to use to derive a name for an authorization query from a digital certificate:

```
hostname(config)# tunnel-group remotegrp type remote-access
hostname(config)# tunnel-group remotegrp general-attributes
hostname(config-tunnel-general)# username-from-certificate CN
hostname(config-tunnel-general)# secondary-username-from-certificate OU
```

```
hostname(config-tunnel-general)#
```

The following example shows how to modify the tunnel-group attributes to configure the pre-fill username.

```
username-from-certificate {use-entire-name | use-script | <primary-attr>} [secondary-attr]
secondary-username-from-certificate {use-entire-name | use-script | <primary-attr>}
[secondary-attr] ; used only for double-authentication
```

Related Commands

Command	Description
pre-fill-username	Enables the pre-fill username feature.
secondary-pre-fill-username	Enables username extraction for clientless or AnyConnect client connection
username-from-certificate	Specifies the field in a certificate to use as the username for authorization.
show running-config tunnel-group	Shows the indicated tunnel-group configuration.
secondary-authentication-server-group	Specifies the secondary AAA server group. If the usernames are extracted from a digital certificate, only the primary username is used for authentication.

security-group

To add a security group to a security object group for use with Cisco TrustSec, use the **security-group** command in object-group security configuration mode. To remove the security group, use the **no** form of this command.

security-group {**tag** *sgt#* | **name** *sg_name*}

no security-group {**tag** *sgt#* | **name** *sg_name*}

Syntax Description

tag *sgt#*	Specifies the security group object as an inline tag. Enter a number from 1 to 65533 for a Tag security type. An SGT is assigned to a device through IEEE 802.1X authentication, web authentication, or MAC authentication bypass (MAB) by the ISE. Security group names are created on the ISE and provide user-friendly names for security groups. The security group table maps SGTs to security group names.
name *sg_name*	Specifies the security group object as a named object. Enter a 32-byte case-sensitive string for a Name security type. The *sg_name* can contain any character including [a-z], [A-Z], [0-9], [!@#$%^&()-_{}.].

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Object-group security configuration	•	•	•	•	—

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

You can create security group object groups for use in features that support Cisco TrustSec by including the group in an extended ACL, which in turn can be used in an access rule, for example.

When integrated with Cisco TrustSec, the ASA downloads security group information from the ISE. The ISE acts as an identity repository, by providing Cisco TrustSec tag to user identity mapping and Cisco TrustSec tag to server resource mapping. You provision and manage security group access lists centrally on the ISE.

However, the ASA might have localized network resources that are not defined globally that require local security groups with localized security policies. Local security groups can contain nested security groups that are downloaded from the ISE. The ASA consolidates local and central security groups.

To create local security groups on the ASA, you create a local security object group. A local security object group can contain one or more nested security object groups or Security IDs or security group names. User can also create a new Security ID or security group name that does not exist on the ASA.

You can use the security object groups you create on the ASA to control access to network resources. You can use the security object group as part of an access group or service policy.

Examples

The following example shows how to configure a security group object:

```
hostname(config)# object-group security mktg-sg
hostname(config)# security-group name mktg
hostname(config)# security-group tag 1
```

The following example shows how to configure a security group object:

```
hostname(config)# object-group security mktg-sg-all
hostname(config)# security-group name mktg-managers
hostname(config)# group-object mktg-sg // nested object-group
```

Related Commands

Command	Description
object-group security	Creates a security group object.

security-level

To set the security level of an interface, use the **security-level** command in interface configuration mode. To set the security level to the default, use the **no** form of this command. The security level protects higher security networks from lower security networks by imposing additional protection between the two.

security-level *number*

no security-level

Syntax Description

number	An integer between 0 (lowest) and 100 (highest).

Defaults

By default, the security level is 0.

If you name an interface "inside" and you do not set the security level explicitly, then the ASA sets the security level to 100 (see the **nameif** command). You can change this level if desired.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was moved from a keyword of the **nameif** command to an interface configuration mode command.

Usage Guidelines

The level controls the following behavior:

- Network access—By default, there is an implicit permit from a higher security interface to a lower security interface (outbound). Hosts on the higher security interface can access any host on a lower security interface. You can limit access by applying an access list to the interface.

  For same security interfaces, there is an implicit permit for interfaces to access other interfaces on the same security level or lower.

- Inspection engines—Some inspection engines are dependent on the security level. For same security interfaces, inspection engines apply to traffic in either direction.
  - NetBIOS inspection engine—Applied only for outbound connections.
  - OraServ inspection engine—If a control connection for the OraServ port exists between a pair of hosts, then only an inbound data connection is permitted through the ASA.

- Filtering—HTTP(S) and FTP filtering applies only for outbound connections (from a higher level to a lower level).

  For same security interfaces, you can filter traffic in either direction.

- NAT control—When you enable NAT control, you must configure NAT for hosts on a higher security interface (inside) when they access hosts on a lower security interface (outside).

  Without NAT control, or for same security interfaces, you can choose to use NAT between any interface, or you can choose not to use NAT. Keep in mind that configuring NAT for an outside interface might require a special keyword.

- **established** command—This command allows return connections from a lower security host to a higher security host if there is already an established connection from the higher level host to the lower level host.

  For same security interfaces, you can configure **established** commands for both directions.

Normally, interfaces on the same security level cannot communicate. If you want interfaces on the same security level to communicate, see the **same-security-traffic** command. You might want to assign two interfaces to the same level and allow them to communicate if you want to create more than 101 communicating interfaces, or you want protection features to be applied equally for traffic between two interfaces; for example, you have two departments that are equally secure.

If you change the security level of an interface, and you do not want to wait for existing connections to time out before the new security information is used, you can clear the connections using the **clear local-host** command.

Examples

The following example configures the security levels for two interfaces to be 100 and 0:

```
hostname(config)# interface gigabitethernet0/0
hostname(config-if)# nameif inside
hostname(config-if)# security-level 100
hostname(config-if)# ip address 10.1.1.1 255.255.255.0
hostname(config-if)# no shutdown
hostname(config-if)# interface gigabitethernet0/1
hostname(config-if)# nameif outside
hostname(config-if)# security-level 0
hostname(config-if)# ip address 10.1.2.1 255.255.255.0
hostname(config-if)# no shutdown
```

Related Commands

Command	Description
clear local-host	Resets all connections.
interface	Configures an interface and enters interface configuration mode.
nameif	Sets the interface name.
vlan	Assigns a VLAN ID to a subinterface.

send response

To send a RADIUS Accounting-Response Start and Accounting-Response Stop message to the sender of the RADIUS Accounting-Request Start and Stop messages, use the **send response** command in radius-accounting parameter configuration mode, which is accessed by using the **inspect radius-accounting** command.

This option is disabled by default.

send response

no send response

Syntax Description

This command has no arguments or keywords.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Radius-accounting parameter configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to send a response with RADIUS accounting:

```
hostname(config)# policy-map type inspect radius-accounting ra
hostname(config-pmap)# send response
hostname(config-pmap-p)# send response
```

Related Commands

Commands	Description
inspect radius-accounting	Sets inspection for RADIUS accounting.
parameters	Sets parameters for an inspection policy map.

seq-past-window

To set the action for packets that have past-window sequence numbers (the sequence number of a received TCP packet is greater than the right edge of the TCP receiving window), use the **seq-past-window** command in tcp-map configuration mode. To set the value back to the default, use the **no** form of this command. This command is part of the TCP normalization policy enabled using the **set connection advanced-options** command.

seq-past-window {**allow** | **drop**}

no seq-past-window

Syntax Description

allow	Allows packets that have past-window sequence numbers. This action is only allowed if the **queue-limit** command is set to 0 (disabled).
drop	Drops packets that have past-window sequence numbers.

Defaults

The default action is to drop packets that have past-window sequence numbers.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tcp-map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(4)/8.0(4)	This command was introduced.

Usage Guidelines

To enable TCP normalization, use the Modular Policy Framework:

1. **tcp-map**—Identifies the TCP normalization actions.
   a. **seq-past-window**—In tcp-map configuration mode, you can enter the **seq-past-window** command and many others.
2. **class-map**—Identify the traffic on which you want to perform TCP normalization.
3. **policy-map**—Identify the actions associated with each class map.
   a. **class**—Identify the class map on which you want to perform actions.
   b. **set connection advanced-options**—Identify the tcp-map you created.
4. **service-policy**—Assigns the policy map to an interface or globally.

Examples

The following example sets the ASA to allow packets that have past-window sequence numbers:

```
hostname(config)# tcp-map tmap
hostname(config-tcp-map)# seq-past-window allow
hostname(config)# class-map cmap
hostname(config-cmap)# match any
hostname(config)# policy-map pmap
hostname(config-pmap)# class cmap
hostname(config-pmap)# set connection advanced-options tmap
hostname(config)# service-policy pmap global
hostname(config)#
```

Related Commands

Command	Description
class-map	Identifies traffic for a service policy.
policy-map	dentifies actions to apply to traffic in a service policy.
queue-limit	Sets the out-of-order packet limit.
set connection advanced-options	Enables TCP normalization.
service-policy	Applies a service policy to interface(s).
show running-config tcp-map	Shows the TCP map configuration.
tcp-map	Creates a TCP map and allows access to tcp-map configuration mode.

serial-number

To include the ASA serial number in the certificate during enrollment, use the **serial-number** command in crypto ca trustpoint configuration mode. To restore the default setting, use the **no** form of the command.

serial-number

no serial-number

Syntax Description

This command has no arguments or keywords.

Defaults

The default setting is to not include the serial number.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Crypto ca trustpoint configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example enters crypto ca trustpoint configuration mode for trustpoint central, and includes the ASA serial number in the enrollment request for trustpoint central:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# serial-number
```

Related Commands

Command	Description
crypto ca trustpoint	Enters trustpoint configuration mode.

server (pop3s, imap4s, smtps)

To specify a default e-mail proxy server, use the **server** command in the applicable e-mail proxy configuration mode. To remove the attribute from the configuration, use the **no** version of this command. The ASA sends requests to the default e-mail server when the user connects to the e-mail proxy without specifying a server. If you do not configure a default server, and a user does not specify a server, the ASA returns an error.

server {*ipaddr or hostname*}

no server

Syntax Description

hostname	The DNS name of the default e-mail proxy server.
ipaddr	The IP address of the default e-mail proxy server.

Defaults

There is no default e-mail proxy server by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Pop3s configuration	•	•	—	—	•
Imap4s configuration	•	•	—	—	•
Smtps configuration	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to set a default POP3S e-mail server with an IP address. of 10.1.1.7:

```
hostname(config)# pop3s
hostname(config-pop3s)# server 10.1.1.7
```

server authenticate-client

To enable the ASA to authenticate the TLS client during TLS handshake, use the **server authenticate-client** command in tls-proxy configuration mode.

To bypass client authenticaion, use the **no** form of this command.

server authenticate-client

no server authenticate-client

Syntax Description

This command has arguments or keywords.

Defaults

This command is enabled by default, which means the TLS client is required to present a certificate during handshake with the ASA.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tls-proxy configuration	•	•	•	•	—

Command History

Release	Modification
8.0(4)	The command was introduced.

Usage Guidelines

Use the **server authenticate-client** command to control whether a client authentication is required during TLS Proxy handshake. When enabled (by default), the security appliance sends a Certificate Request TLS handshake message to the TLS client, and the TLS client is required to present its certificate.

Use the **no** form of this command to disable client authentication. Disabling TLS client authentication is suitable when the ASA must interoperate with CUMA client or clients such as a Web browser that are incapable of sending a client certificate.

Examples

The following example configures a TLS proxy instance with client authentication disabled:

```
hostname(config)# tls-proxy mmp_tls
hostname(config-tlsp)# no server authenticate-client
hostname(config-tlsp)# server trust-point cuma_server_proxy
```

Related Commands

Command	Description
tls-proxy	Configures the TLS proxy instance.

server backup

To configure the backup Cloud Web Security proxy server, use the **server backup** command in scansafe general-options configuration mode. To remove the server, use the **no** form of this command.

server backup {**ip** *ip_address* | **fqdn** *fqdn*} [**port** *port*]

no server backup [**ip** *ip_address* | **fqdn** *fqdn*] [**port** *port*]

Syntax Description

ip *ip_address*	Specifies the server IP address.
fqdn *fqdn*	Specifies the server fully-qualified domain name (FQDN).
port *port*	(Optional) By default, the Cloud Web Security proxy server uses port 8080 for both HTTP and HTTPS traffic; do not change this value unless directed to do so.

Command Default

The default port is 8080.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Scansafe general-options configuration	•	•	•	—	•

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

When you subscribe to the Cisco Cloud Web Security service, you are assigned a primary Cloud Web Security proxy server and backup proxy server. See the **server primary** command to configure the primary server. These servers are routinely polled to check for their availability. If your ASA is unable to reach the Cloud Web Security proxy server (for example, if no SYN/ACK packets arrive from the proxy server), then the proxy server is polled through a TCP three-way handshake to check its availability. If the proxy server is unavailable after a configured number of retries (default is five), the server is declared as unreachable, and the backup proxy server becomes active.

The ASA automatically falls back to the primary Cloud Web Security proxy server from the backup server after continued polling shows that the primary server is active for two consecutive retry count periods. You can change this polling interval using the **retry-count** command.

Traffic Conditions Under Which Proxy Server Is Not Reachable	Server Timeout Calculation	Connection Timeout Result
High traffic	Client half open connection timeout + ASA TCP connection timeout	(30 + 30) = 60 seconds
Single connection failure	Client half open connection timeout + ((retry threshold - 1) x (ASA TCP connection timeout))	(30 + ((5-1) x (30)) = 150 seconds
Idle—No connections are passing	15 minutes + ((retry threshold) x (ASA TCP connection timeout))	900 + (5 x (30) = 1050 seconds

Examples

The following example configures a primary and backup server:

```
scansafe general-options
 server primary ip 10.24.0.62 port 8080
 server backup ip 10.10.0.7 port 8080
 retry-count 7
 license 366C1D3F5CE67D33D3E9ACEC265261E5
```

Related Commands

Command	Description
class-map type inspect scansafe	Creates an inspection class map for whitelisted users and groups.
default user group	Specifies the default username and/or group if the ASA cannot determine the identity of the user coming into the ASA.
http[**s**] (parameters)	Specifies the service type for the inspection policy map, either HTTP or HTTPS.
inspect scansafe	Enables Cloud Web Security inspection on the traffic in a class.
license	Configures the authentication key that the ASA sends to the Cloud Web Security proxy servers to indicate from which organization the request comes.
match user group	Matches a user or group for a whitelist.
policy-map type inspect scansafe	Creates an inspection policy map so you can configure essential parameters for the rule and also optionally identify the whitelist.
retry-count	Enters the retry counter value, which is the amount of time that the ASA waits before polling the Cloud Web Security proxy server to check its availability.
scansafe	In multiple context mode, allows Cloud Web Security per context.
scansafe general-options	Configures general Cloud Web Security server options.
show conn scansafe	Shows all Cloud Web Security connections, as noted by the capitol Z flag.
show scansafe server	Shows the status of the server, whether it's the current active server, the backup server, or unreachable.
show scansafe statistics	Shows total and current http connections.

Command	Description
user-identity monitor	Downloads the specified user or group information from the AD agent.
whitelist	Performs the whitelist action on the class of traffic.

server primary

To configure the primary Cloud Web Security proxy server, use the **server primary** command in scansafe general-options configuration mode. To remove the server, use the **no** form of this command.

server primary {**ip** *ip_address* | **fqdn** *fqdn*} [**port** *port*]

no server primary [**ip** *ip_address* | **fqdn** *fqdn*] [**port** *port*]

Syntax Description

ip *ip_address*	Specifies the server IP address.
fqdn *fqdn*	Specifies the server fully-qualified domain name (FQDN).
port *port*	(Optional) By default, the Cloud Web Security proxy server uses port 8080 for both HTTP and HTTPS traffic; do not change this value unless directed to do so.

Command Default

The default port is 8080.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Scansafe general-options configuration	•	•	•	—	•

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

When you subscribe to the Cisco Cloud Web Security service, you are assigned a primary Cloud Web Security proxy server and backup proxy server. See the **server backup** command to configure the backup server. These servers are routinely polled to check for their availability. If your ASA is unable to reach the Cloud Web Security proxy server (for example, if no SYN/ACK packets arrive from the proxy server), then the proxy server is polled through a TCP three-way handshake to check its availability. If the proxy server is unavailable after a configured number of retries (default is five), the server is declared as unreachable, and the backup proxy server becomes active.

The ASA automatically falls back to the primary Cloud Web Security proxy server from the backup server after continued polling shows that the primary server is active for two consecutive retry count periods. You can change this polling interval using the **retry-count** command.

Traffic Conditions Under Which Proxy Server Is Not Reachable	Server Timeout Calculation	Connection Timeout Result
High traffic	Client half open connection timeout + ASA TCP connection timeout	(30 + 30) = 60 seconds
Single connection failure	Client half open connection timeout + ((retry threshold - 1) x (ASA TCP connection timeout))	(30 + ((5-1) x (30)) = 150 seconds
Idle—No connections are passing	15 minutes + ((retry threshold) x (ASA TCP connection timeout))	900 + (5 x (30) = 1050 seconds

Examples

The following example configures a primary and backup server:

```
scansafe general-options
 server primary ip 10.24.0.62 port 8080
 server backup ip 10.10.0.7 port 8080
 retry-count 7
 license 366C1D3F5CE67D33D3E9ACEC265261E5
```

Related Commands

Command	Description
class-map type inspect scansafe	Creates an inspection class map for whitelisted users and groups.
default user group	Specifies the default username and/or group if the ASA cannot determine the identity of the user coming into the ASA.
http[**s**] (parameters)	Specifies the service type for the inspection policy map, either HTTP or HTTPS.
inspect scansafe	Enables Cloud Web Security inspection on the traffic in a class.
license	Configures the authentication key that the ASA sends to the Cloud Web Security proxy servers to indicate from which organization the request comes.
match user group	Matches a user or group for a whitelist.
policy-map type inspect scansafe	Creates an inspection policy map so you can configure essential parameters for the rule and also optionally identify the whitelist.
retry-count	Enters the retry counter value, which is the amount of time that the ASA waits before polling the Cloud Web Security proxy server to check its availability.
scansafe	In multiple context mode, allows Cloud Web Security per context.
scansafe general-options	Configures general Cloud Web Security server options.
server {**primary** | **backup**}	Configures the fully qualified domain name or IP address of the primary or backup Cloud Web Security proxy servers.
show conn scansafe	Shows all Cloud Web Security connections, as noted by the capitol Z flag.
show scansafe server	Shows the status of the server, whether it's the current active server, the backup server, or unreachable.

Command	Description
show scansafe statistics	Shows total and current HTTP(S) connections.
user-identity monitor	Downloads the specified user or group information from the AD agent.
whitelist	Performs the whitelist action on the class of traffic.

server trust-point

To specify the proxy trustpoint certificate to present during TLS handshake, use the **server trust-point** command in TLS server configuration mode.

server trust-point *proxy_trustpoint*

Syntax Description

proxy_trustpoint	Specifies the trustpoint defined by the **crypto ca trustpoint** command.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
TLS-proxy configuration	•	•	•	•	—

Command History

Release	Modification
8.0(4)	The command was introduced.

Usage Guidelines

The trustpoint can be self-signed, enrolled with a certificate authority, or from an imported credential. The **server trust-point** command has precedence over the global **ssl trust-point** command.

The **server trust-point** command specifies the proxy trustpoint certificate presented during TLS handshake. The certificate must be owned by the ASA (identity certificate). The certificate can be self-signed, enrolled with a certificate authority, or from an imported credential.

Create TLS proxy instances for each entity that can initiate a connection. The entity that initiates the TLS connection is in the role of TLS client. Because the TLS Proxy has strict definition of client proxy and server proxy, two TLS proxy instances must be defined if either of the entities could initiate the connection.

Note When you are creating the TLS proxy instance to use with the Phone Proxy, the server trustpoint is the internal Phone Proxy trustpoint created the CTL file instance. The trustpoint name is in the form *internal_PP_<ctl-file_instance_name>*

Examples

The following example shows the use of the **server trust-point** command to specify the proxy trustpoint certificate to present during TLS handshake:

```
hostname(config-tlsp)# server trust-point ent_y_proxy
```

Related Commands

Command	Description
client (tls-proxy)	Configures trustpoints, keypairs, and cipher suites for a TLS proxy instance.
client trust-point	Specifies the proxy trustpoint certificate to present during TLS handshake.
ssl trust-point	Specifies the certificate trustpoint that represents the SSL certificate for an interface.
tls-proxy	Configures a TLS proxy instance.

server-port

To configure a AAA server port for a host, use the **server-port** command in aaa-server host mode. To remove the designated server port, use the **no** form of this command.

server-port *port-number*

no server-port *port-number*

Syntax Description

port-number	A port number in the range of 0 through 65535.

Defaults

The default server ports are as follows:

- SDI—5500
- LDAP—389
- Kerberos—88
- NT—139
- TACACS+—49

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Aaa-server group	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example configures an SDI AAA server named srvgrp1 to use server port number 8888:

```
hostname(config)# aaa-server srvgrp1 protocol sdi
hostname(config-aaa-server-group)# aaa-server srvgrp1 host 192.168.10.10
hostname(config-aaa-server-host)# server-port 8888
```

Related Commands

Command	Description
aaa-server host	Configures host-specific AAA server parameters.

clear configure aaa-server	Removes all AAA server configurations.
show running-config aaa-server	Displays AAA server statistics for all AAA servers, for a particular server group, for a particular server within a particular group, or for a particular protocol.

server-separator

To specify a character as a delimiter between the e-mail and VPN server names, use **server-separator** command in the applicable e-mail proxy mode. To revert to the default, ":", use the no form of this command.

server-separator {*symbol*}

no server-separator

Syntax Description

symbol	The character that separates the e-mail and VPN server names. Choices are "@," (at) "|" (pipe), ":"(colon), "#" (hash), "," (comma), and ";" (semi-colon).

Defaults

The default is "@" (at).

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Pop3s	•	—	•	—	—
Imap4s	•	—	•	—	—
Smtps	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The server separator must be different from the name separator.

Examples

The following example shows how to set a pipe (|) as the server separator for IMAP4S:

```
hostname(config)# imap4s
hostname(config-imap4s)# server-separator |
```

Related Commands

Command	Description
name-separator	Separates the e-mail and VPN usernames and passwords.

server-type

To manually configure the LDAP server model, use the **server-type** command in aaa-server host configuration mode. The ASA supports the following server models:

- Microsoft Active Directory
- Sun Microsystems JAVA System Directory Server, formerly named the Sun ONE Directory Server
- Generic LDAP directory servers that comply with LDAPv3 (no password management)

To disable this command, use the **no** form of this command.

server-type {**auto-detect | microsoft | sun | generic | openldap | novell**}

no server-type {**auto-detect | microsoft | sun | generic | openldap | novell**}

Syntax Description

auto-detect	Specifies that the ASA determines the LDAP server type through auto-detection.
generic	Specifies LDAP v3-compliant directory servers other than Sun and Microsoft LDAP directory servers. Password management is not supported with generic LDAP servers.
microsoft	Specifies that the LDAP server is a Microsoft Active Directory.
openldap	Specifies that the LDAP server is an OpenLDAP server.
novell	Specifies that the LDAP server is a Novell server.
sun	Specifies that the LDAP server is a Sun Microsystems JAVA System Directory Server.

Defaults

By default, auto-detection attempts to determine the server type.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Aaa-server host configuration	•	•	•	•	—

Command History

Release	Modification
7.1(1)	This command was introduced.
8.0(2)	Support for the OpenLDAP and Novell server types was added.

Usage Guidelines

The ASA supports LDAP version 3 and is compatible with the Sun Microsystems JAVA System Directory Server, the Microsoft Active Directory, and other LDAPv3 directory servers.

Note

- Sun—The DN configured on the ASA to access a Sun directory server must be able to access the default password policy on that server. We recommend using the directory administrator, or a user with directory administrator privileges, as the DN. Alternatively, you can place an ACI on the default password policy.
- Microsoft—You must configure LDAP over SSL to enable password management with Microsoft Active Directory.
- Generic—Password management features are not supported.

By default, the ASA auto-detects whether it is connected to a Microsoft directory server, a Sun LDAP directory server, or a generic LDAPv3 server. However, if auto-detection fails to determine the LDAP server type and if you know the server is either a Microsoft or Sun server, you can use the **server-type** command to manually configure the server as either a Microsoft or a Sun Microsystems LDAP server.

Examples

The following example, entered in aaa-server host configuration mode, configures the server type for the LDAP server ldapsvr1 at IP address 10.10.0.1. The first example configures a Sun Microsystems LDAP server.

```
hostname(config)# aaa-server ldapsvr1 protocol ldap
hostname(config-aaa-server-group)# aaa-server ldapsvr1 host 10.10.0.1
hostname(config-aaa-server-host)# server-type sun
```

The following example specifies that the ASA use auto-detection to determine the server type:

```
hostname(config)# aaa-server ldapsvr1 protocol LDAP
hostname(config-aaa-server-group)# aaa-server ldapsvr1 host 10.10.0.1
hostname(config-aaa-server-host)# server-type auto-detect
```

Related Commands

Command	Description
ldap-over-ssl	Specifies that SSL secures the LDAP client-server connection.
sasl-mechanism	Configures SASL authentication between the LDAP client and server.
ldap attribute-map (global configuration mode)	Creates and names an LDAP attribute map for mapping user-defined attribute names to Cisco LDAP attribute names.

service

To enable resets for denied TCP connections, use the **service** command in global configuration mode. To disable resets, use the **no** form of this command.

service {**resetinbound** [**interface** *interface_name*] | **resetoutbound** [**interface** *interface_name*] | **resetoutside**}

no service {**resetinbound** [**interface** *interface_name*] | **resetoutbound** [**interface** *interface_name*] | **resetoutside**}

Syntax Description

interface *interface_name*	Enables or disables resets for the specified interface.
resetinbound	Sends TCP resets for all inbound TCP sessions that attempt to transit the ASA and are denied by the ASA based on access lists or AAA settings. The ASA also sends resets for packets that are allowed by an access list or AAA, but do not belong to an existing connection and are denied by the stateful firewall. Traffic between same security level interfaces is also affected. When this option is not enabled, the ASA silently discards denied packets. If you do not specify an interface, then this setting applies to all interfaces.
resetoutbound	Sends TCP resets for all outbound TCP sessions that attempt to transit the ASA and are denied by the ASA based on access lists or AAA settings. The ASA also sends resets for packets that are allowed by an access list or AAA, but do not belong to an existing connection and are denied by the stateful firewall. Traffic between same security level interfaces is also affected. When this option is not enabled, the ASA silently discards denied packets. This option is enabled by default. You might want to disable outbound resets to reduce the CPU load during traffic storms, for example.
resetoutside	Enables resets for TCP packets that terminate at the least secure interface and are denied by the ASA based on access lists or AAA settings. The ASA also sends resets for packets that are allowed by an access list or AAA, but do not belong to an existing connection and are denied by the stateful firewall. When this option is not enabled, the ASA silently discards the packets of denied packets. We recommend that you use the **resetoutside** keyword with interface PAT. This keyword allows the ASA to terminate the IDENT from an external SMTP or FTP server. Actively resetting these connections avoids the 30-second timeout delay.

Defaults

By default, **service resetoutbound** is enabled for all interfaces.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.1(1)	The **interface** keyword and the **resetoutbound** command were added.

Usage Guidelines

You might want to explicitly send resets for inbound traffic if you need to reset identity request (IDENT) connections. When you send a TCP RST (reset flag in the TCP header) to the denied host, the RST stops the incoming IDENT process so that you do not have to wait for IDENT to time out. Waiting for IDENT to time out can cause traffic to slow because outside hosts keep retransmitting the SYN until the IDENT times out, so the **service resetinbound** command might improve performance.

Examples

The following example disables outbound resets for all interfaces except for the inside interface:

```
hostname(config)# no service resetoutbound
hostname(config)# service resetoutbound interface inside
```

The following example enables inbound resets for all interfaces except for the DMZ interface:

```
hostname(config)# service resetinbound
hostname(config)# no service resetinbound interface dmz
```

The following example enables resets for connections that terminate on the outside interface:

```
hostname(config)# service resetoutside
```

Related Commands

Command	Description
show running-config service	Displays the service configuration.

service (ctl-provider)

To specify the port to which the Certificate Trust List provider listens, use the **service** command in CTL provider configuration mode. To remove the configuration, use the **no** form of this command.

service port *listening_port*

no service port *listening_port*

Syntax Description

port *listening_port*	Specifies the certificate to be exported to the client.

Defaults

Default port is 2444.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ctl provider configuration	•	•	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Use the **service** command in CTL provider configuration mode to specify the port to which the CTL provider listens. The port must be the one listened to by the CallManager servers in the cluster (as configured under Enterprise Parameters on the CallManager administration page). The default port is 2444.

Examples

The following example shows how to create a CTL provider instance:

```
hostname(config)# ctl-provider my_ctl
hostname(config-ctl-provider)# client interface inside 172.23.45.1
hostname(config-ctl-provider)# client username CCMAdministrator password XXXXXX encrypted
hostname(config-ctl-provider)# export certificate ccm_proxy
hostname(config-ctl-provider)# ctl install
```

Related Commands

Commands	Description
client	Specifies clients allowed to connect to the CTL provider and also username and password for client authentication.
ctl	Parses the CTL file from the CTL client and install trustpoints.

Commands	Description
ctl-provider	Configures a CTL provider instance in CTL provider mode.
export	Specifies the certificate to be exported to the client
tls-proxy	Defines a TLS proxy instance and sets the maximum sessions.

service (object service)

To define the protocol and optional port for a service object, use the **service** command in object service configuration mode. Use the **no** form of this command to remove the definition.

service {*protocol* | {**tcp** | **udp**} [**source** *operator number*] [**destination** *operator number*] | **icmp** [*icmp_type*] | **icmp6** [*icmp6_type*]}

no service {*protocol* | {**tcp** | **udp**} [**source** *operator number*] [**destination** *operator number*] | **icmp** [*icmp_type*] | **icmp6** [*icmp6_type*]}

Syntax Description

destination *operator number*	(Optional) For **tcp** and **udp** protocols, specifies the destination port name or number, between 0 and 65535. For a list of supported names, see the CLI help. Operators include: • **eq**—Equals the port number. • **gt**—Greater than the port number. • **lt**—Less than the port number. • **neq**—Not equal to the port number. • **range**—A range of ports. Specify two numbers separated by a space, such as **range 1024 4500**.
icmp [*icmp_type*]	Specifies that the service type is for ICMP connections. You can optionally specify the ICMP type by name or number, between 0 and 255. For available optional ICMP type names, see the CLI help.
icmp6 [*icmp6_type*]	Specifies that the service type is for ICMP version 6 connections. You can optionally specify the ICMPv6 type by name or number, between 0 and 255. For available optional ICMPv6 type names, see the CLI help.
protocol	Identifies the protocol name or number, between 0 and 255. For a list of supported names, see the CLI help.
source *operator number*	(Optional) For **tcp** and **udp** protocols, specifies the source port name or number, between 0 and 65535. For a list of supported names, see the CLI help. Operators include: • **eq**—Equals the port number. • **gt**—Greater than the port number. • **lt**—Less than the port number. • **neq**—Not equal to the port number. • **range**—A range of ports. Specify two numbers separated by a space, such as **range 1024 4500**.
tcp	Specifies that the service type is for TCP connections.
udp	Specifies that the service type is for UDP connections.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Object service configuration	•	•	•	•	—

Command History

Release	Modification
8.3(1)	This command was introduced.

Usage Guidelines

You can use service objects by name in other parts of your configuration, for example ACLs (the **access-list** command) and NAT (the **nat** command).

If you configure an existing service object with a different protocol and port, the new configuration replaces the existing protocol and port with the new ones.

Examples

The following example shows how to create a service object for SSH traffic:

```
hostname(config)# service object SSH
hostname(config-service-object)# service tcp destination eq ssh
```

The following example shows how to create a service object for EIGRP traffic:

```
hostname(config)# service object EIGRP
hostname(config-service-object)# service eigrp
```

The following example shows how to create a service object for traffic coming from port 0 through 1024 to HTTPS:

```
hostname(config)# service object HTTPS
hostname(config-service-object)# service tcp source range 0 1024 destination eq https
```

Related Commands

Command	Description
clear configure object	Clears all objects created.
object-group service	Configures a service object.
show running-config object service	Shows the current service object configuration.

service call-home

To enable the Call Home service, use the **service call-home** command in global configuration mode. To disable the Call Home service, use the **no** form of this command.

service call-home

no service call-home

Syntax Description

This command has no arguments or keywords.

Defaults

By default, the service Call Home command is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
8.2(2)	This command was introduced.

Examples

The following example shows how to enable the Call Home service:

```
hostname(config)# service call-home
```

The followingexample shows how to disable the Call Home service:

```
hostname(config)# no service call-home
```

Related Commands

Command	Description
call-home (global configuration)	Enters Call Home configuration mode.
call-home test	Manually sends a Call Home test message.
show call-home	Displays Call Home configuration information.

service password-recovery

To enable password recovery, use the **service password-recovery** command in global configuration mode. To disable password recovery, use the **no** form of this command. Password recovery is enabled by default, but you might want to disable it to ensure that unauthorized users cannot use the password recovery mechanism to compromise the ASA.

service password-recovery

no service password-recovery

Syntax Description

This command has no arguments or keywords.

Defaults

Password recovery is enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

On the ASA 5500 series adaptive security appliance, if you forget the passwords, you can boot the ASA into ROMMON by pressing the **Escape** key on the terminal keyboard when prompted during startup. Then set the ASA to ignore the startup configuration by changing the configuration register (see the **config-register** command). For example if your configuration register is the default 0x1, then change the value to 0x41 by entering the **confreg 0x41** command. After reloading the ASA, it loads a default configuration, and you can enter privileged EXEC mode using the default passwords. Then load the startup configuration by copying it to the running configuration and reset the passwords. Finally, set the ASA to boot as before by setting the configuration register to the original setting. For example, enter the **config-register 0x1** command in global configuration mode.

On the PIX 500 series security appliance, boot the ASA into monitor mode by pressing the **Escape** key on the terminal keyboard when prompted during startup. Then download the PIX password tool to the ASA, which erases all passwords and **aaa authentication** commands.

On the ASA 5500 series adaptive security appliance, the **no service password-recovery** command prevents a user from entering ROMMON with the configuration intact. When a user enters ROMMON, the ASA prompts the user to erase all Flash file systems. The user cannot enter ROMMON without first performing this erasure. If a user chooses not to erase the Flash file system, the ASA reloads. Because password recovery depends on using ROMMON and maintaining the existing configuration, this erasure prevents you from recovering a password. However, disabling password recovery prevents unauthorized

users from viewing the configuration or inserting different passwords. In this case, to recover the system to an operating state, load a new image and a backup configuration file, if available. The **service password-recovery** command appears in the configuration file for informational purposes only; when you enter the command at the CLI prompt, the setting is saved in NVRAM. The only way to change the setting is to enter the command at the CLI prompt. Loading a new configuration with a different version of the command does not change the setting. If you disable password recovery when the ASA is configured to ignore the startup configuration at startup (in preparation for password recovery), then the ASA changes the setting to boot the startup configuration as usual. If you use failover, and the standby unit is configured to ignore the startup configuration, then the same change is made to the configuration register when the **no service password recovery** command replicates to the standby unit.

On the PIX 500 series security appliance, the **no service password-recovery** command forces the PIX password tool to prompt the user to erase all Flash file systems. The user cannot use the PIX password tool without first performing this erasure. If a user chooses not to erase the Flash file system, the ASA reloads. Because password recovery depends on maintaining the existing configuration, this erasure prevents you from recovering a password. However, disabling password recovery prevents unauthorized users from viewing the configuration or inserting different passwords. In this case, to recover the system to an operating state, load a new image and a backup configuration file, if available.

Examples

The following example disables password recovery for the ASA 5500 series:

```
hostname(config)# no service password-recovery
WARNING: Executing "no service password-recovery" has disabled the password recovery
mechanism and disabled access to ROMMON.  The only means of recovering from lost or
forgotten passwords will be for ROMMON to erase all file systems including configuration
files and images.  You should make a backup of your configuration and have a mechanism to
restore images from the ROMMON command line.
```

The following example for the ASA 5500 series shows when to enter ROMMON at startup and how to complete a password recovery operation.

```
Use BREAK or ESC to interrupt boot.
Use SPACE to begin boot immediately.
Boot interrupted.


Use ? for help.
rommon #0> confreg

Current Configuration Register: 0x00000001
Configuration Summary:
  boot default image from Flash

Do you wish to change this configuration? y/n [n]: n

rommon #1> confreg 0x41

Update Config Register (0x41) in NVRAM...

rommon #2> boot
Launching BootLoader...
Boot configuration file contains 1 entry.


Loading disk0:/ASA_7.0.bin... Booting...
###################
...
Ignoring startup configuration as instructed by configuration register.
Type help or '?' for a list of available commands.
```

```
hostname> enable
Password:
hostname# configure terminal
hostname(config)# copy startup-config running-config

Destination filename [running-config]?
Cryptochecksum(unchanged): 7708b94c e0e3f0d5 c94dde05 594fbee9

892 bytes copied in 6.300 secs (148 bytes/sec)
hostname(config)# enable password NewPassword
hostname(config)# config-register 0x1
```

Related Commands

Command	Description
config-register	Sets the ASA to ignore the startup configuration when it reloads.
enable password	Sets the enable password.
password	Sets the login password.

service-object

To add a service or service object to a service object group that is not pre-defined as TCP, UDP, or TCP-UDP, use the **service-object** command in object-group service configuration mode. To remove a service, use the **no** form of this command.

service-object {*protocol* | {**tcp** | **udp** | **tcp-udp**} [**source** *operator number*] [**destination** *operator number*] | **icmp** [*icmp_type*] | **icmp6** [*icmp6_type*] | **object** *name*}

no service-object {*protocol* | {**tcp** | **udp** | **tcp-udp**} [**source** *operator number*] [**destination** *operator number*] | **icmp** [*icmp_type*] | **icmp6** [*icmp6_type*] | **object** *name*}

Syntax Description

destination *operator number*	(Optional) For **tcp**, **udp**, or **tcp-udp** protocols, specifies the destination port name or number, between 0 and 65535. For a list of supported names, see the CLI help. Operators include: • **eq**—Equals the port number. • **gt**—Greater than the port number. • **lt**—Less than the port number. • **neq**—Not equal to the port number. • **range**—A range of ports. Specify two numbers separated by a space, such as **range 1024 4500**.
icmp [*icmp_type*]	Specifies that the service type is for ICMP connections. You can optionally specify the ICMP type by name or number, between 0 and 255. For available optional ICMP type names, see the CLI help.
icmp6 [*icmp6_type*]	Specifies that the service type is for ICMP version 6 connections. You can optionally specify the ICMPv6 type by name or number, between 0 and 255. For available optional ICMPv6 type names, see the CLI help.
protocol	Identifies the protocol name or number, between 0 and 255. For a list of supported names, see the CLI help.
source *operator number*	(Optional) For **tcp**, **udp**, or **tcp-udp** protocols, specifies the source port name or number, between 0 and 65535. For a list of supported names, see the CLI help. Operators include: • **eq**—Equals the port number. • **gt**—Greater than the port number. • **lt**—Less than the port number. • **neq**—Not equal to the port number. • **range**—A range of ports. Specify two numbers separated by a space, such as **range 1024 4500**.
tcp	Specifies that the service type is for TCP connections.
tcp-udp	Specifies that the service type is for TCP or UDP connections.
udp	Specifies that the service type is for UDP connections.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Object-group service configuration	•	•	•	•	—

Command History

Release	Modification
8.0(1)	This command was introduced.
8.3(1)	The **object** keyword was added to support service objects (the **object service** command).

Usage Guidelines

When you create a service object group with the **object-group service** command, and you do not pre-define the protocol type for the whole group, then you can add multiple services and service objects to the group of various protocols and/or ports using the **service-object** command. When you create a service object group for a specific protocol type using the **object-group service** [**tcp** | **udp** | **tcp-udp**] command, then you can only identify the destination ports for the object group using the **port-object** command.

Examples

The following example shows how to add both TCP and UDP services to a service object group:

```
hostname(config)# object-group service CommonApps
hostname(config-service-object-group)# service-object destination tcp eq ftp
hostname(config-service-object-group)# service-object destination tcp-udp eq www
hostname(config-service-object-group)# service-object destination tcp eq h323
hostname(config-service-object-group)# service-object destination tcp eq https
hostname(config-service-object-group)# service-object destination udp eq ntp
```

The following example shows how to add multiple service objects to a service object group:

```
hostname(config)# service object SSH
hostname(config-service-object)# service tcp destination eq ssh

hostname(config)# service object EIGRP
hostname(config-service-object)# service eigrp

hostname(config)# service object HTTPS
hostname(config-service-object)# service tcp source range 0 1024 destination eq https

hostname(config)# object-group service Group1
hostname(config-service-object-group)# service-object object SSH
hostname(config-service-object-group)# service-object object EIGRP
hostname(config-service-object-group)# service-object object HTTPS
```

Related Commands

Command	Description
clear configure object-group	Removes all the **object-group** commands from the configuration.
network-object	Adds a network object to a network object group.
object service	Adds a service object.
object-group	Defines object groups to optimize your configuration.
port-object	Adds a port object to a service object group.
show running-config object-group	Displays the current object groups.

service-policy (class)

To apply a hierarchical policy map under another policy map, use the **service-policy** command in class configuration mode. To disable the service policy, use the **no** form of this command. Hierarchical policies are supported only for QoS traffic shaping when you want to perform priority queueing on a subset of shaped traffic.

service-policy *policymap_name*

no service-policy *policymap_name*

Syntax Description

policymap_name	Specifies the policy map name that you configured in the **policy-map** command. You can only specify a Layer 3/4 policy map that includes the **priority** command.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
7.2(4)/8.0(4)	This command was introduced.

Usage Guidelines

Hierarchical priority queueing is used on interfaces on which you enable a traffic shaping queue. A subset of the shaped traffic can be prioritized. The standard priority queue is not used (the **priority-queue** command).

For hierarchical priority-queueing, perform the following tasks using Modular Policy Framework:

1. **class-map**—Identify the traffic on which you want to perform priority queueing.
2. **policy-map** (for priority queueing)—Identify the actions associated with each class map.
   a. **class**—Identify the class map on which you want to perform actions.
   b. **priority**—Enable priority queueing for the class map. You can only include the priority command in this policy map if you want to use is hierarchically.
3. **policy-map** (for traffic shaping)—Identify the actions associated with the **class-default** class map.
   a. **class class-default**—Identify the **class-default** class map on which you want to perform actions.
   b. **shape**—Apply traffic shaping to the class map.

c. **service-policy**—Call the priority queueing policy map in which you configured the **priority** command so you can apply priority queueing to a subset of shaped traffic.

4. **service-policy**—Assigns the policy map to an interface or globally.

Examples

The following example enables traffic shaping for all traffic on the outside interface, and prioritizes traffic within VPN tunnel-grp1 with the DSCP bit set to ef:

```
hostname(config)# class-map TG1-voice
hostname(config-cmap)# match tunnel-group tunnel-grp1
hostname(config-cmap)# match dscp ef

hostname(config)# policy-map priority-sub-policy
hostname(config-pmap)# class TG1-voice
hostname(config-pmap-c)# priority

hostname(config-pmap-c)# policy-map shape_policy
hostname(config-pmap)# class class-default
hostname(config-pmap-c)# shape
hostname(config-pmap-c)# service-policy priority-sub-policy

hostname(config-pmap-c)# service-policy shape_policy interface outside
```

Related Commands

Command	Description
class (policy-map)	Identifies a class map for a policy map.
clear configure service-policy	Clears service policy configurations.
clear service-policy	Clears service policy statistics.
policy-map	Identifies actions to perform on class maps.
priority	Enables priority queueing.
service-policy (global)	Applies a policy map to an interface.
shape	Enables traffic shaping.
show running-config service-policy	Displays the service policies configured in the running configuration.
show service-policy	Displays the service policy statistics.

service-policy (global)

To activate a policy map globally on all interfaces or on a targeted interface, use the **service-policy** command in global configuration mode. To disable the service policy, use the **no** form of this command. Use the **service-policy** command to enable a set of policies on an interface.

service-policy *policymap_name* [**global** | **interface** *intf*] [**fail-close**]

no service-policy *policymap_name* [**global** | **interface** *intf*] [**fail-close**]

Syntax Description

fail-close	Generates a syslog (767001) for IPv6 traffic that is dropped by application inspections that do not support IPv6 traffic. By default, syslogs are not generated.
global	Applies the policy map to all interfaces.
interface *intf*	Applies the policy map to a specific interface.
policymap_name	Specifies the policy map name that you configured in the **policy-map** command. You can only specify a Layer 3/4 policy map, and not an inspection policy map (**policy-map type inspect**).

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	We added the **fail-close** keyword.

Usage Guidelines

To enable the service policy, use the Modular Policy Framework:

1. **class-map**—Identify the traffic on which you want to perform priority queueing.
2. **policy-map**—Identify the actions associated with each class map.
   a. **class**—Identify the class map on which you want to perform actions.
   b. *commands for supported features*—For a given class map, you can configure many actions for various features, including QoS, application inspection, CSC or AIP SSM, TCP and UDP connections limits and timeout, and TCP normalization. See the CLI configuration guide for more details about the commands available for each feature.

3. **service-policy**—Assigns the policy map to an interface or globally.

Interface service policies take precedence over the global service policy for a given feature. For example, if you have a global policy with inspections, and an interface policy with TCP normalization, then both inspections and TCP normalization are applied to the interface. However, if you have a global policy with inspections, and an interface policy with inspections, then only the interface policy inspections are applied to that interface.

By default, the configuration includes a global policy that matches all default application inspection traffic and applies inspection to the traffic globally. You can only apply one global policy, so if you want to alter the global policy, you need to either edit the default policy or disable it and apply a new one.

The default service policy includes the following command:

```
service-policy global_policy global
```

Examples

The following example shows how to enable the inbound_policy policy map on the outside interface:

```
hostname(config)# service-policy inbound_policy interface outside
```

The following commands disable the default global policy, and enables a new one called new_global_policy on all other ASA interfaces:

```
hostname(config)# no service-policy global_policy global
hostname(config)# service-policy new_global_policy global
```

Related Commands

Command	Description
clear configure service-policy	Clears service policy configurations.
clear service-policy	Clears service policy statistics.
service-policy (class)	Applies a hierarchical policy under another policy map.
show running-config service-policy	Displays the service policies configured in the running configuration.
show service-policy	Displays the service policy statistics.

session

To establish a Telnet session from the ASA to a module, such as an IPS SSP or a CSC SSM, to access the module CLI, use the **session** command in privileged EXEC mode.

session *id*

Syntax Description

id	Specifies the module ID: • Physical module—**1** (for slot number 1) • Software module, IPS—**ips** • Software module, ASA CX—**cxsc**

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.
8.6(1)	Added the **ips** module ID for the IPS SSP software module.
9.1(1)	Support for the ASA CX module was added (the **cxsc** keyword).

Usage Guidelines

This command is only available when the module is in the Up state. See the **show module** command for state information.

To end a session, enter **exit** or **Ctrl-Shift-6,** then the **x** key.

Note This command is not available for the ASA CX hardware module; it is only available for the ASA CX software module.

Examples

The following example sessions to a module in slot 1:

```
hostname# session 1
Opening command session with slot 1.
Connected to slot 1. Escape character sequence is 'CTRL-^X'.
```

Related Commands

Command	Description
debug session-command	Shows debugging messages for sessions.

session console

To establish a virtual console session from the ASA to a software module, such as an IPS SSP software module, use the **session console** command in privileged EXEC mode. This command might be useful if you cannot establish a Telnet session using the **session** command because the control plane is down.

session *id* **console**

Syntax Description

id	Specifies the module ID; either **ips** or **cxsc**.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command.

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
8.6(1)	This command was introduced.
9.1(1)	Support for the ASA CX module was added (the **cxsc** keyword).

Usage Guidelines

To end a session, enter **Ctrl-Shift-6,** then the **x** key.

Do not use this command in conjunction with a terminal server where **Ctrl-Shift-6, x** is the escape sequence to return to the terminal server prompt. **Ctrl-Shift-6, x** is also the sequence to escape the module console and return to the ASA prompt. Therefore, if you try to exit the module console in this situation, you instead exit all the way to the terminal server prompt. If you reconnect the terminal server to the ASA, the module console session is still active; you can never exit to the ASA prompt. You must use a direct serial connection to return the console to the ASA prompt.

Use the **session** command instead.

Examples

The following example creates a console session to the IPS module:

```
hostname# session ips console

Establishing console session with slot 1
Opening console session with module ips.
Connected to module ips. Escape character sequence is 'CTRL-SHIFT-6 then x'.

sensor login: service
Password: test
```

Related Commands

Command	Description
session	Initiates a Telnet session to a module.
show module log console	Displays console log information.

session do

To establish a Telnet session and perform a command from the ASA to a module, such as an IPS SSP or a CSC SSM, use the **session do** command in privileged EXEC mode.

session *id* **do** *command*

Syntax Description

id	Specifies the module ID: • Physical module—**1** (for slot number 1) • Software module, IPS—**ips**
command	Performs a command on the module. Supported commands include: • **setup host ip** *ip_address*/*mask*,*gateway_ip*—Sets the management IP address and gateway. • **get-config**—Gets the module configuration. • **password-reset**—Resets the module password to the default.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.1(1)	This command was introduced.
8.6(1)	Added the **ips** module ID for the IPS SSP software module.
8.4(4.1)	We added support for the ASA CX module.

Usage Guidelines

This command is only available when the module is in the Up state. See the **show module** command for state information.

To end a session, enter **exit** or **Ctrl-Shift-6,** then the **X** key.

Examples

The following example sets the management IP address to 10.1.1.2/24, with a default gateway of 10.1.1.1:

```
hostname# session 1 do setup host ip 10.1.1.2/24,10.1.1.1
```

Related Commands

Command	Description
debug session-command	Shows debugging messages for sessions.

session ip

To configure logging IP addresses for the module, such as an IPS SSP or a CSC SSM, use the **session ip** command in privileged EXEC mode.

session *id* **ip** {**address** *address mask* | **gateway** *address*}

Syntax Description

id	Specifies the module ID: • Physical module—**1** (for slot number 1) • Software module, IPS—**ips**
address *address*	Sets the syslog server address.
gateway *address*	Sets the gateway to the syslog server.
mask	Sets the subnet mask.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.1(1)	This command was introduced.
8.4(4.1)	We added support for the ASA CX module.
8.6(1)	Added the **ips** module ID for the IPS SSP software module.

Usage Guidelines

This command is only available when the module is in the Up state. See the **show module** command for state information.

To end a session, enter **exit** or **Ctrl-Shift-6,** then the **X** key.

Examples

The following example sessions to a module in slot 1:

```
hostname# session 1 ip address
```

Related Commands

Command	Description
debug session-command	Shows debugging messages for sessions.

set connection

To specify connection limits within a policy map for a traffic class, use the **set connection** command in class configuration mode. To remove these specifications, thereby allowing unlimited connections, use the **no** form of this command.

set connection {[**conn-max** *n*] [**embryonic-conn-max** *n*] [**per-client-embryonic-max** *n*] [**per-client-max** *n*] [**random-sequence-number** {**enable** | **disable**}]}

no set connection {[**conn-max** *n*] [**embryonic-conn-max** *n*] [**per-client-embryonic-max** *n*] [**per-client-max** *n*] [**random-sequence-number** {**enable** | **disable**}]}

Syntax Description

conn-max *n*	Sets the maximum number of simultaneous TCP and/or UDP connections that are allowed, between 0 and 2000000. The default is 0, which allows unlimited connections. For example, if two servers are configured to allow simultaneous TCP and/or UDP connections, the connection limit is applied to each configured server separately. When configured under a class, this argument restricts the maximum number of simultaneous connections that are allowed for the entire class. In this case, one attack host can consume all the connections and leave none of the rest of the hosts matched in the access list under the class.
embryonic-conn-max *n*	Sets the maximum number of simultaneous embryonic connections allowed, between 0 and 2000000. The default is 0, which allows unlimited connections.
per-client-embryonic-max *n*	Sets the maximum number of simultaneous embryonic connections allowed per client, between 0 and 2000000. A client is defined as the host that sends the initial packet of a connection (that builds the new connection) through the ASA. If an **access-list** is used with a **class-map** to match traffic for this feature, the embryonic limit is applied per-host, and not the cumulative embryonic connections of all clients that match the access list. The default is 0, which allows unlimited connections. This keyword is not available for management class maps.
per-client-max *n*	Sets the maximum number of simultaneous connections allowed per client, between 0 and 2000000. A client is defined as the host that sends the initial packet of a connection (that builds the new connection) through the ASA. If an **access-list** is used with a **class-map** to match traffic for this feature, the connection limit is applied per-host, and not the cumulative connections of all clients that match the access list. The default is 0, which allows unlimited connections. This keyword is not available for management class maps. When configured under a class, this keyword restricts the maximum number of simultaneous connections that are allowed for each host that is matched through an access list under the class.
random-sequence-number {enable | disable}	Enables or disables TCP sequence number randomization. This keyword is not available for management class maps. See the "Usage Guidelines" section for more information.

Defaults

For the **conn-max**, **embryonic-conn-max**, **per-client-embryonic-max**, and **per-client-max** parameters, the default value of *n* is 0, which allows unlimited connections.

Sequence number randomization is enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	The **per-client-embryonic-max** and **per-client-max** keywords were added.
8.0(2)	This command is now available for a Layer 3/4 management class map, for to-the-ASA management traffic. Only the **conn-max** and **embryonic-conn-max** keywords are available.
9.0(1)	The maximum number of connections was increased from 65535 to 2000000.

Usage Guidelines

Configure this command using Modular Policy Framework. First define the traffic to which you want to apply the timeout using the **class-map** command (for through traffic) or **class-map type management** command (for management traffic). Then enter the **policy-map** command to define the policy, and enter the **class** command to reference the class map. In class configuration mode, you can enter the **set connection** command. Finally, apply the policy map to an interface using the **service-policy** command. For more information about how Modular Policy Framework works, see the CLI configuration guide.

Note Depending on the number of CPU cores on your ASA model, the maximum concurrent and embryonic connections may exceed the configured numbers due to the way each core manages connections. In the worst case scenario, the ASA allows up to *n*-1 extra connections and embryonic connections, where *n* is the number of cores. For example, if your model has 4 cores, if you configure 6 concurrent connections and 4 embryonic connections, you could have an additional 3 of each type. To determine the number of cores for your model, enter the **show cpu core** command.

TCP Intercept Overview

Limiting the number of embryonic connections protects you from a DoS attack. The ASA uses the per-client limits and the embryonic connection limit to trigger TCP Intercept, which protects inside systems from a DoS attack perpetrated by flooding an interface with TCP SYN packets. An embryonic connection is a connection request that has not finished the necessary handshake between source and destination. TCP Intercept uses the SYN cookies algorithm to prevent TCP SYN-flooding attacks. A SYN-flooding attack consists of a series of SYN packets usually originating from spoofed IP addresses. The constant flood of SYN packets keeps the server SYN queue full, which prevents it from servicing connection requests. When the embryonic connection threshold of a connection is crossed, the ASA acts

as a proxy for the server and generates a SYN-ACK response to the client SYN request. When the ASA receives an ACK back from the client, it can then authenticate the client and allow the connection to the server.

Disabling TCP Intercept for Management Packets for Clientless SSL Compatibility

By default, TCP management connections have TCP Intercept always enabled. When TCP Intercept is enabled, it intercepts the 3-way TCP connection establishment handshake packets and thus deprives the ASA from processing the packets for clientless SSL. Clientless SSL requires the ability to process the 3-way handshake packets to provide selective ACK and other TCP options for clientless SSL connections. To disable TCP Intercept for management traffic, you can set the embryonic connection limit; only after the embryonic connection limit is reached is TCP Intercept enabled.

TCP Sequence Randomization Overview

Each TCP connection has two ISNs: one generated by the client and one generated by the server. The ASA randomizes the ISN of the TCP SYN passing in both the inbound and outbound directions.

Randomizing the ISN of the protected host prevents an attacker from predecting the next ISN for a new connection and potentially hijacking the new session.

TCP initial sequence number randomization can be disabled if required. For example:

- If another in-line firewall is also randomizing the initial sequence numbers, there is no need for both firewalls to be performing this action, even though this action does not affect the traffic.
- If you use eBGP multi-hop through the ASA, and the eBGP peers are using MD5. Randomization breaks the MD5 checksum.
- You use a WAAS device that requires the ASA not to randomize the sequence numbers of connections.

Examples

The following is an example of the use of the **set connection** command configure the maximum number of simultaneous connections as 256 and to disable TCP sequence number randomization:

```
hostname(config)# policy-map localpolicy1
hostname(config-pmap)# class local_server
hostname(config-pmap-c)# set connection conn-max 256 random-sequence-number disable
hostname(config-pmap-c)#
```

The following is an example of the use of the **set connection** command in a service policy that diverts traffic to a CSC SSM. The **set connection** command restricts each client whose traffic the CSC SSM scans to a maximum of five connections.

```
hostname(config)# policy-map csc_policy
hostname(config-pmap)# class local_server
hostname(config-pmap-c)# set connection per-client-max 5
hostname(config-pmap-c)# csc fail-close
hostname(config-pmap-c)#
```

You can enter this command with multiple parameters or you can enter each parameter as a separate command. The ASA combines the commands into one line in the running configuration. For example, if you entered the following two commands in class configuration mode:

```
hostname(config-pmap-c)# set connection conn-max 600
hostname(config-pmap-c)# set connection embryonic-conn-max 50
```

the output of the **show running-config policy-map** command would display the result of the two commands in a single, combined command:

```
set connection conn-max 600 embryonic-conn-max 50
```

Related Commands

Command	Description
class	Specifies a class-map to use for traffic classification.
clear configure policy-map	Removes all policy-map configuration, except that if a policy-map is in use in a service-policy command, that policy-map is not removed.
policy-map	Configures a policy; that is, an association of a traffic class and one or more actions.
show running-config policy-map	Displays all current policy-map configurations.
show service-policy	Displays service policy configuration. Use the **set connection** keyword to view policies that include the **set connection** command.

set connection advanced-options

To customize TCP normalization, use the **set connection advanced-options** command in class configuration mode. To remove the TCP normalization options, use the **no** form of this command.

set connection advanced-options *tcp_mapname*

no set connection advanced-options *tcp_mapname*

Syntax Description

tcp_mapname	Name of a TCP map created by the **tcp-map** command.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To enable TCP state bypass, use the Modular Policy Framework:

1. **tcp-map**—Identify the TCP normalization actions.
2. **class-map**—Identify the traffic on which you want to perform TCP normalization actions.
3. **policy-map**—Identify the actions associated with the class map.
   a. **class**—Identify the class map on which you want to perform actions.
   b. **set connection advanced options**—Apply TCP normalization to the class map.
4. **service-policy**—Assigns the policy map to an interface or globally.

Examples

The following example shows the use of the **set connection advanced-options** command to specify the use of a TCP map named localmap:

```
hostname(config)# access-list http-server permit tcp any host 10.1.1.1
hostname(config)# class-map http-server
hostname(config-cmap)# match access-list http-server
hostname(config-cmap)# exit
hostname(config)# tcp-map localmap
hostname(config)# policy-map global_policy global
```

```
hostname(config-pmap)# description This policy map defines a policy concerning connection
to http server.
hostname(config-pmap)# class http-server
hostname(config-pmap-c)# set connection advanced-options localmap
hostname(config-pmap-c)#
```

Related Commands

Command	Description
class	Specifies a class-map to use for traffic classification.
class-map	Configures a traffic class by issuing at most one (with the exception of tunnel-group and default-inspection-traffic) match command, specifying match criteria, in the class-map configuration mode.
clear configure policy-map	Remove all policy-map configuration, except that if a policy-map is in use in a service-policy command, that policy-map is not removed.
policy-map	Configures a policy; that is, an association of a traffic class and one or more actions.
show running-config policy-map	Display all current policy-map configurations.

set connection advanced-options tcp-state-bypass

To enable TCP state bypass, use the **set connection advanced-options** command in class configuration mode. The class configuration mode is accessible from the policy-map configuration mode. To disable TCP state bypass, use the **no** form of this command.

set connection advanced-options tcp-state-bypass

no set connection advanced-options tcp-state-bypass

Syntax Description

This command has no arguments or keywords.

Defaults

By default, TCP state bypass is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

To enable TCP state bypass, use the Modular Policy Framework:

1. **class-map**—Identify the traffic on which you want to perform TCP state bypass.
2. **policy-map**—Identify the actions associated with the class map.
   a. **class**—Identify the class map on which you want to perform actions.
   b. **set connection advanced options tcp-state-bypass**—Apply traffic shaping to the class map.
3. **service-policy**—Assigns the policy map to an interface or globally.

Allowing Outbound and Inbound Flows through Separate Devices

By default, all traffic that goes through the ASA is inspected using the Adaptive Security Algorithm and is either allowed through or dropped based on the security policy. The ASA maximizes the firewall performance by checking the state of each packet (is this a new connection or an established connection?) and assigning it to either the session management path (a new connection SYN packet), the fast path (an established connection), or the control plane path (advanced inspection).

TCP packets that match existing connections in the fast path can pass through the ASA without rechecking every aspect of the security policy. This feature maximizes performance. However, the method of establishing the session in the fast path using the SYN packet, and the checks that occur in the fast path (such as TCP sequence number), can stand in the way of asymmetrical routing solutions: both the outbound and inbound flow of a connection must pass through the same ASA.

For example, a new connection goes to ASA 1. The SYN packet goes through the session management path, and an entry for the connection is added to the fast path table. If subsequent packets of this connection go through ASA 1, then the packets will match the entry in the fast path, and are passed through. But if subsequent packets go to ASA 2, where there was not a SYN packet that went through the session management path, then there is no entry in the fast path for the connection, and the packets are dropped.

If you have asymmetric routing configured on upstream routers, and traffic alternates between two ASAs, then you can configure TCP state bypass for specific traffic. TCP state bypass alters the way sessions are established in the fast path and disables the fast path checks. This feature treats TCP traffic much as it treats a UDP connection: when a non-SYN packet matching the specified networks enters the ASA, and there is not a fast path entry, then the packet goes through the session management path to establish the connection in the fast path. Once in the fast path, the traffic bypasses the fast path checks.

Unsupported Features

The following features are not supported when you use TCP state bypass:

- Application inspection—Application inspection requires both inbound and outbound traffic to go through the same ASA, so application inspection is not supported with TCP state bypass.
- AAA authenticated sessions—When a user authenticates with one ASA, traffic returning via the other ASA will be denied because the user did not authenticate with that ASA.
- TCP Intercept, maximum embryonic connection limit, TCP sequence number randomization—The ASA does not keep track of the state of the connection, so these features are not applied.
- TCP normalization—The TCP normalizer is disabled.
- SSM functionality—You cannot use TCP state bypass and any application running on an SSM, such as IPS or CSC.

NAT Guidelines

Because the translation session is established separately for each ASA, be sure to configure static NAT on both ASAs for TCP state bypass traffic; if you use dynamic NAT, the address chosen for the session on ASA 1 will differ from the address chosen for the session on ASA 2.

Connection Timeout Guidelines

If there is no traffic on a given connection for 2 minutes, the connection times out. You can override this default using the **set connection timeout tcp** command. Normal TCP connections timeout by default after 60 minutes.

Examples

The following is an example configuration for TCP state bypass:

```
hostname(config)# access-list tcp_bypass extended permit tcp 10.1.1.0 255.255.255.224 any

hostname(config)# class-map tcp_bypass
hostname(config-cmap)# description "TCP traffic that bypasses stateful firewall"
hostname(config-cmap)# match access-list tcp_bypass

hostname(config-cmap)# policy-map tcp_bypass_policy
hostname(config-pmap)# class tcp_bypass
hostname(config-pmap-c)# set connection advanced-options tcp-state-bypass

hostname(config-pmap-c)# service-policy tcp_bypass_policy outside

hostname(config-pmap-c)# static (inside,outside) 209.165.200.224 10.1.1.0 netmask
255.255.255.224
```

Related Commands

Command	Description
class	Identifies a class map in the policy map.
class-map	Creates a class map for use in a service policy.
policy-map	Configures a policy map that associates a class map and one or more actions.
service-policy	Assigns a policy map to an interface.
set connection timeout	Sets the connection timeouts.

set connection decrement-ttl

To decrement the time to live value within a policy map for a traffic class, use the **set connection decrement-ttl** command in class configuration mode. To not decrement the time to live, use the **no** form of this command.

set connection decrement-ttl

no set connection decrement-ttl

Syntax Description

This command has no arguments or keywords.

Defaults

By default, the ASA does not decrement the time to live.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
7.2(2)	This command was introduced.

Usage Guidelines

This command, along with the **icmp unreachable** command, is required to allow a traceroute through the ASA that shows the ASA as one of the hops.

Examples

The following example enables time to live decrements and sets the ICMP unreachable rate limit:

```
hostname(config)# policy-map localpolicy1
hostname(config-pmap)# class local_server
hostname(config-pmap-c)# set connection decrement-ttl
hostname(config-pmap-c)# exit
hostname(config)# icmp unreachable rate-limit 50 burst-size 6
```

Related Commands

Command	Description
class	Specifies a class map to use for traffic classification.
clear configure policy-map	Removes all policy map configuration, except if a policy map is in use in a **service-policy** command, that policy map is not removed.
icmp unreachable	Controls the rate at which ICMP unreachables are allowed through the ASA.

policy-map	Configures a policy; that is, an association of a traffic class and one or more actions.
show running-config policy-map	Displays all current policy map configurations.
show service-policy	Displays service policy configuration.

set connection timeout

To specify connection timeouts within a policy map for a traffic class, use the **set connection timeout** command in class configuration mode. To remove the timeout, use the **no** form of this command.

set connection timeout {[**embryonic** *hh*:*mm*:*ss*] [**idle** *hh*:*mm*:*ss* [**reset**]] [**half-closed** *hh*:*mm*:*ss*] [**dcd** [*retry_interval* [*max_retries*]]]}

no set connection timeout {[**embryonic** *hh*:*mm*:*ss*] [**idle** *hh*:*mm*:*ss* [**reset**]] [**half-closed** *hh*:*mm*:*ss*] [**dcd** [*retry_interval* [*max_retries*]]]}

Syntax Description

dcd	Enables dead connection detection (DCD). DCD detects a dead connection and allows it to expire, without expiring connections that can still handle traffic. You configure DCD when you want idle, but valid connections to persist. After a TCP connection times out, the ASA sends DCD probes to the end hosts to determine the validity of the connection. If one of the end hosts fails to respond after the maximum retries are exhausted, the ASA frees the connection. If both end hosts respond that the connection is valid, the ASA updates the activity timeout to the current time and reschedules the idle timeout accordingly.
embryonic *hh*:*mm*:*ss*	Sets the timeout period until a TCP embryonic (half-open) connection is closed, between 0:0:5 and 1193:0:0. The default is 0:0:30. You can also set the value to 0, which means the connection never times out. A TCP connection for which a three-way handshake is not complete is an embryonic connection.
half-closed *hh*:*mm*:*ss*	Sets the idle timeout period until a half-closed connection is closed, between 0:5:0 (for 9.1(1) and earlier) or 0:0:30 (for 9.1(2) and later) and 1193:0:0. The default is 0:10:0. You can also set the value to 0, which means the connection never times out. Half-closed connections are not affected by DCD. Also, the ASA does not send a reset when taking down half-closed connections.
idle *hh*:*mm*:*ss*	Sets the idle timeout period after which an established connection of any protocol closes. The valid range is from 0:0:1 to 1193:0:0.
max_retries	Sets the number of consecutive failed retries for DCD before declaring the connection as dead. The minimum value is 1 and the maximum value is 255. The default is 5.
reset	For TCP traffic only, sends a TCP RST packet to both end systems after idle connections are removed.
retry_interval	Time duration in *hh*:*mm*:*ss* format to wait after each unresponsive DCD probe before sending another probe, between 0:0:1 and 24:0:0. The default is 0:0:15.

Defaults

The default **embryonic** timeout is 30 seconds.

The default **half-closed** idle timeout is 10 minutes.

The default **dcd** *max_retries* value is 5.

The default **dcd** *retry_interval* value is 15 seconds.

The default **tcp** idle timeout is 1 hour.

The default **udp** idle timeout is 2 minutes.

The default **icmp** idle timeout is 2 seconds.

The default **esp** and **ha** idle timeout is 30 seconds.

For all other protocols, the default idle timeout is 2 minutes.

To never time out, enter 0:0:0.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	Support for DCD was added.
8.2(2)	The **tcp** keyword was deprecated in favor of the **idle** keyword, which controls the idle timeout for all protocols.
9.1(2)	The minimum **half-closed** value was lowered to 30 seconds (0:0:30).

Usage Guidelines

Configure this command using Modular Policy Framework. First define the traffic to which you want to apply the timeout using the **class-map** command. Then enter the **policy-map** command to define the policy, and enter the **class** command to reference the class map. In class configuration mode, you can enter the **set connection timeout** command. Finally, apply the policy map to an interface using the **service-policy** command. For more information about how Modular Policy Framework works, see the CLI configuration guide.

Enabling DCD changes the behavior of idle-timeout handling in the TCP normalizer. DCD probing resets the idle timeout on the connections that appear in the **show conn** command. To determine when a connection that has exceeded the configured timeout value in the timeout command but has been kept alive due to DCD probing, use the **show service-policy** command to include counters to show the amount of activity from DCD.

Examples

The following example sets the connection timeouts for all traffic:

```
hostname(config)# class-map CONNS
hostname(config-cmap)# match any
hostname(config-cmap)# policy-map CONNS
hostname(config-pmap)# class CONNS
hostname(config-pmap-c)# set connection timeout idle 2:0:0 embryonic 0:40:0 half-closed
0:20:0 dcd
hostname(config-pmap-c)# service-policy CONNS interface outside
```

You can enter **set connection** commands with multiple parameters, or you can enter each parameter as a separate command. The ASA combines the commands into one line in the running configuration. For example, if you entered the following two commands in class configuration mode:

```
hostname(config-pmap-c)# set connection timeout idle 2:0:0
hostname(config-pmap-c)# set connection timeout embryonic 0:40:0
```

Then the output of the **show running-config policy-map** command would display the result of the two commands in the following single, combined command:

```
set connection timeout tcp 2:0:0 embryonic 0:40:0
```

Related Commands

Command	Description
class	Specifies a class-map to use for traffic classification.
clear configure policy-map	Remove all policy-map configuration, except that if a policy-map is in use in a service-policy command, that policy-map is not removed.
policy-map	Configures a policy; that is, an association of a traffic class and one or more actions.
set connection	Configure connection values.
show running-config policy-map	Display all current policy-map configurations.
show service-policy	Displays counters for DCD and other service activity.

set metric

To set the metric value of a route for OSPF and other dynamic routing protocols in a route map, use the **set metric** command in route-map configuration mode. To return to the default metric value for OSPF and other dynamic routing protocols, use the **no** form of this command.

set metric *metric-value* | [*bandwidth delay reliability loading mtu*]

no set metric *metric-value* | [*bandwidth delay reliability loading mtu*]

Syntax Description

bandwidth	EIGRP bandwidth of a route, in kbps. Valid values range from 0 to 4294967295.
delay	EIGRP route delay, in tens of microseconds. Valid values range from 0 to 4294967295.
loading	Effective EIGRP bandwidth of a route expressed as a number from 0 to 255. The value 255 means 100 percent loading.
metric-value	Metric value of a route for OSPF and other dynamic routing protocols (except for EIGRP), expressed as a number. Valid values range from 0 to 4294967295.
mtu	Minimum MTU size of a route for EIGRP, in bytes. Valid values range from 0 to 4294967295.
reliability	Likelihood of successful packet transmission for EIGRP expressed as a number from 0 to 255. The value 255 means 100 percent reliability; 0 means no reliability.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Route-map configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.2(5)	Added the *bandwidth*, *delay*, *reliability*, *loading*, and *mtu* arguments to support EIGRP in a route map.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

The **no set metric** command allows you to return to the default metric value for OSPF and other dynamic routing protocols. In this context, the *metric-value* argument is an integer from 0 to 4294967295.

Examples

The following example shows how to configure a route map for OSPF routing:

```
hostname(config)# route-map maptag1 permit 8
hostname(config-route-map)# set metric 5
hostname(config-route-map)# match metric 5
hostname(config-route-map)# show route-map
route-map maptag1 permit 8
set metric 5
match metric 5
```

The following example shows how to set the metric value for EIGRP in a route map:

```
hostname(config)# access-list route-out line 1 standard permit 10.1.1.0 255.255.255.0
hostname(config)# route-map rmap permit 10
hostname(config-route-map)# set metric 10000 60 100 1 1500
hostname(config-route-map)# show route-map rmap
route-map rmap, permit, sequence 10
  Match clauses:
    ip address (access-lists): route-out
  Set clauses:
    metric 10000 60 100 1 1500
hostname(config-route-map)# show running-config route-map
route-map rmap permit 10
 match ip address route-out
 set metric 10000 60 100 1 1500
```

Related Commands

Command	Description
match interface	Distributes any routes that have their next hop out of one of the interfaces specified,
match ip next-hop	Distributes any routes that have a next-hop router address that is passed by one of the access lists specified.
route-map	Defines the conditions for redistributing routes from one routing protocol into another.

set metric-type

To specify the type of OSPF metric routes, use the **set metric-type** command in route-map configuration mode. To return to the default setting, use the **no** form of this command.

set metric-type {**type-1** | **type-2**}

no set metric-type

Syntax Description

type-1	Specifies the type of OSPF metric routes that are external to a specified autonomous system.
type-2	Specifies the type of OSPF metric routes that are external to a specified autonomous system.

Defaults

The default is **type-2**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Route-map configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Examples

The following example shows how to configure a route map for OSPF routing:

```
hostname(config)# route-map maptag1 permit 8
hostname(config-route-map)# set metric 5
hostname(config-route-map)# match metric 5
hostname(config-route-map)# set metric-type type-2
hostname(config-route-map)# show route-map
route-map maptag1 permit 8
  set metric 5
  set metric-type type-2
  match metric 5
hostname(config-route-map)# exit
hostname(config)#
```

Related Commands

Command	Description
match interface	Distributes any routes that have their next hop out one of the interfaces specified,
route-map	Defines the conditions for redistributing routes from one routing protocol into another.
set metric	Specifies the metric value in the destination routing protocol for a route map.

setup

To configure a minimal configuration for the ASA using interactive prompts, enter the **setup** command in global configuration mode.

setup

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.
8.4(1)	In routed mode for the ASA 5510 and higher, the interface configured is now the Management *slot*/*port* interface, and not the "inside" interface. For the ASA 5505, the interface configured is the VLAN 1 interface, not "inside".
9.0(1)	The default configuration prompt was changed, and Ctrl + Z to exit the setup process was enabled.

Usage Guidelines

The setup prompt automatically appears at boot time if there is no startup configuration in flash memory.

The **setup** command walks you through minimal configuration to establish ASDM connectivity. This command is designed for a unit that has either no configuration or a partial configuration. If your model supports a factory default configuration, we recommend using the factory default configuration instead of the **setup** command (to restore the default configuration, use the **configure factory-default** command).

The **setup** command requires an already-named interface called "management".

When you enter the **setup** command, you are asked for the information in Table 43-1. If there is already a configuration for the listed parameter, it appears in brackets, so you can either accept it as the default or override it by entering a new value. The exact prompts available may differ per model. The system **setup** command includes a subset of these prompts.

Table 43-1 Setup Prompts

Prompt	Description
`Pre-configure Firewall now through interactive prompts [yes]?`	Enter **yes** or **no**. If you enter **yes**, the setup continues. If **no**, the setup stops and the global configuration prompt (hostname(config)#) appears.
`Firewall Mode [Routed]:`	Enter **routed** or **transparent**.
`Enable password:`	Enter an enable password. (The password must have at least three characters.)
`Allow password recovery [yes]?`	Enter **yes** or **no**.
`Clock (UTC):`	You cannot enter anything in this field. The UTC time is used by default.
`Year:`	Enter the year using four digits, for example, 2005. The year range is 1993 to 2035.
`Month:`	Enter the month using the first three characters of its name, for example, **Sep** for September.
`Day:`	Enter the day of the month, from 1 to 31.
`Time:`	Enter the hour, minutes, and seconds in 24-hour time format, for example, enter **20:54:44** for 8:54 p.m and 44 seconds.
`Host name:`	Enter the hostname that you want to display in the command line prompt.
`Domain name:`	Enter the domain name of the network on which the ASA runs.
`IP address of host running Device Manager:`	Enter the IP address of the host that needs to access ASDM.
`Use this configuration and save to flash (yes)?`	Enter **yes** or **no**. If you enter **yes**, the inside interface is enabled and the requested configuration is written to the Flash partition. If you enter **no**, the setup prompt repeats, beginning with the first question: `Pre-configure Firewall now through interactive prompts [yes]?` Enter **Ctrl + Z** to exit the setup or **yes** to repeat the prompt.

Examples

The following example shows how to complete the **setup** command:

```
hostname(config)# setup
Pre-configure Firewall now through interactive prompts [yes]? yes
Firewall Mode [Routed]: routed
Enable password [<use current password>]: writer
Allow password recovery [yes]? yes
Clock (UTC):
   Year: 2005
   Month: Nov
   Day: 15
   Time: 10:0:0
Inside IP address: 192.168.1.1
Inside network mask: 255.255.255.0
Host name: tech_pubs
```

```
Domain name: example.com
IP address of host running Device Manager: 10.1.1.1

The following configuration will be used:
Enable password: writer
Allow password recovery: yes
Clock (UTC): 20:54:44 Sep 17 2005
Firewall Mode: Routed
Inside IP address: 192.168.1.1
Inside network mask: 255.255.255.0
Host name: tech_pubs
Domain name: example.com
IP address of host running Device Manager: 10.1.1.1

Use this configuration and write to flash? yes
```

Related Commands

Command	Description
configure factory-default	Restores the default configuration.

shape

To enable QoS traffic shaping, use the **shape** command in class configuration mode. If you have a device that transmits packets at a high speed, such as a ASA with Fast Ethernet, and it is connected to a low speed device such as a cable modem, then the cable modem is a bottleneck at which packets are frequently dropped. To manage networks with differing line speeds, you can configure the ASA to transmit packets at a fixed slower rate, called *traffic shaping*. To remove this configuration, use the **no** form of this command.

Note Traffic shaping is only supported on the ASA 5505, 5510, 5520, 5540, and 5550. Multi-core models (such as the ASA 5500-X) do not support shaping.

shape average *rate* [*burst_size*]

no shape average *rate* [*burst_size*]

Syntax Description

average *rate*	Sets the average rate of traffic in bits per second over a given fixed time period, between 64000 and 154400000. Specify a value that is a multiple of 8000. See the "Usage Guidelines" section for more information about how the time period is calculated.
burst_size	Sets the average burst size in bits that can be transmitted over a given fixed time period, between 2048 and 154400000. Specify a value that is a multiple of 128. If you do not specify the *burst_size*, the default value is equivalent to 4-milliseconds of traffic at the specified average rate. For example, if the average rate is 1000000 bits per second, 4 ms worth = 1000000 * 4/1000 = 4000.

Defaults

If you do not specify the *burst_size*, the default value is equivalent to 4-milliseconds of traffic at the specified average rate. For example, if the average rate is 1000000 bits per second, 4 ms worth = 1000000 * 4/1000 = 4000.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	—	—

Command History

Release	Modification
7.2(4)/8.0(4)	This command was introduced.

Usage Guidelines

To enable traffic shaping, use the Modular Policy Framework:

1. **policy-map**—Identify the actions associated with the **class-default** class map.
   a. **class class-default**—Identify the **class-default** class map on which you want to perform actions.
   b. **shape**—Apply traffic shaping to the class map.
   c. (Optional) **service-policy**—Call a different policy map in which you configured the **priority** command so you can apply priority queueing to a subset of shaped traffic.
2. **service-policy**—Assigns the policy map to an interface or globally.

Traffic Shaping Overview

Traffic shaping is used to match device and link speeds, thereby controlling packet loss, variable delay, and link saturation, which can cause jitter and delay.

- Traffic shaping must be applied to all outgoing traffic on a physical interface or in the case of the ASA 5505, on a VLAN. You cannot configure traffic shaping for specific types of traffic.
- Traffic shaping is implemented when packets are ready to be transmitted on an interface, so the rate calculation is performed based on the actual size of a packet to be transmitted, including all the possible overhead such as the IPsec header and L2 header.
- The shaped traffic includes both through-the-box and from-the-box traffic.
- The shape rate calculation is based on the standard token bucket algorithm. The token bucket size is twice the burst size value. See the CLI configuration guide for more information about the token bucket.
- When bursty traffic exceeds the specified shape rate, packets are queued and transmitted later. Following are some characteristics regarding the shape queue (for information about hierarchical priority queueing, see the **priority** command):
  - The queue size is calculated based on the shape rate. The queue can hold the equivalent of 200-milliseconds worth of shape rate traffic, assuming a 1500-byte packet. The minimum queue size is 64.
  - When the queue limit is reached, packets are tail-dropped.
  - Certain critical keep-alive packets such as OSPF Hello packets are never dropped.
  - The time interval is derived by *time_interval* = *burst_size* / *average_rate*. The larger the time interval is, the burstier the shaped traffic might be, and the longer the link might be idle. The effect can be best understood using the following exaggerated example:

    Average Rate = 1000000

    Burst Size = 1000000

    In the above example, the time interval is 1 second, which means, 1 Mbps of traffic can be bursted out within the first 10 milliseconds of the 1-second interval on a 100 Mbps FE link and leave the remaining 990 milliseconds idle without being able to send any packets until the next time interval. So if there is delay-sensitive traffic such as voice traffic, the Burst Size should be reduced compared to the average rate so the time interval is reduced.

How QoS Features Interact

You can configure each of the QoS features alone if desired for the ASA. Often, though, you configure multiple QoS features on the ASA so you can prioritize some traffic, for example, and prevent other traffic from causing bandwidth problems.

See the following supported feature combinations per interface:

- Standard priority queuing (for specific traffic) + Policing (for the rest of the traffic).

  You cannot configure priority queueing and policing for the same set of traffic.
- Traffic shaping (for all traffic on an interface) + Hierarchical priority queueing (for a subset of traffic).

You cannot configure traffic shaping and standard priority queueing for the same interface; only hierarchical priority queueing is allowed. For example, if you configure standard priority queueing for the global policy, and then configure traffic shaping for a specific interface, the feature you configured last is rejected because the global policy overlaps the interface policy.

Typically, if you enable traffic shaping, you do not also enable policing for the same traffic, although the ASA does not restrict you from configuring this.

Examples

The following example enables traffic shaping for all traffic on the outside interface, and prioritizes traffic within VPN tunnel-grp1 with the DSCP bit set to ef:

```
hostname(config)# class-map TG1-voice
hostname(config-cmap)# match tunnel-group tunnel-grp1
hostname(config-cmap)# match dscp ef

hostname(config)# policy-map priority-sub-policy
hostname(config-pmap)# class TG1-voice
hostname(config-pmap-c)# priority

hostname(config-pmap-c)# policy-map shape_policy
hostname(config-pmap)# class class-default
hostname(config-pmap-c)# shape
hostname(config-pmap-c)# service-policy priority-sub-policy

hostname(config-pmap-c)# service-policy shape_policy interface outside
```

Related Commands

Command	Description
class	Identifies the class map on which you want to perform actions in a policy map.
police	Enables QoS policing.
policy-map	Identifies actions to apply to traffic in a service policy.
priority	Enables QoS priority queueing.
service-policy (class)	Applies a hierarchical policy map.
service-policy (global)	Applies a service policy to interface(s).
show service-policy	Shows QoS statistics.

CHAPTER 44

show aaa kerberos through show asdm sessions Commands

show aaa kerberos

To display all the Kerberos tickets cached on the ASA, use the **show aaa kerberos** command in webvpn configuration mode.

show aaa kerberos [**username** *user* | **host** *ip* | *hostname*]

Syntax Description

host	Specifies the specific host that you want to view.
hostname	Specifies the hostname.
ip	Specifies the IP address for the host.
username	Specifies the specific user that you want to view.

Defaults

No defaults exist for this command.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
8.4(1)	This command was introduced.

Usage Guidelines

Use the **show aaa kerberos** command in webvpn configuration mode to view all the Kerberos tickets cached on the ASA. The **username** and **host** keywords are used to view the Kerberos tickets of a specific user or host.

Examples

The following example shows the usage of the **show aaa kerberos** command:

```
hostname(config)# show aaa kerberos

Default Principal      Valid Starting Expires        Service Principal
kcduser@example.com    06/29/10 17:33:00 06/30/10 17:33:00 asa$/mycompany.com@example.com
kcduser@example.com    06/29/10 17:33:00 06/30/10 17:33:00
http/owa.mycompany.com@example.com
```

Related Commands

Command	Description
clear aaa kerberos	Clears all the Kerberos tickets cached on the ASA.

clear configure aaa-server	Removes all AAA command statements from the configuration.
show running-config aaa-server	Displays AAA server statistics for all AAA servers, for a particular server group, for a particular server within a particular group, or for a particular protocol.

show aaa local user

To show the list of usernames that are currently locked, or to show details about the username, use the show **aaa local user** command in global configuration mode.

show aaa local user [**locked**]

Syntax Description

locked	(Optional) Shows the list of usernames that are currently locked.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

If you omit the optional keyword **locked**, the ASA displays the failed-attempts and lockout status details for all AAA local users.

You can specify a single user by using the **username** option or all users with the **all** option.

This command affects only the status of users that are locked out.

The administrator cannot be locked out of the device.

Examples

The following example shows use of the **show aaa local user** command to display the lockout status of all usernames:

This example shows the use of the **show aaa local user** command to display the number of failed authentication attempts and lockout status details for all AAA local users, after the limit has been set to 5:

```
hostname(config)# aaa local authentication attempts max-fail 5
hostname(config)# show aaa local user
Lock-time  Failed-attempts      Locked  User
    -                   6       Y       test
    -                   2       N       mona
    -                   1       N       cisco
    -                   4       N       newuser
hostname(config)#
```

This example shows the use of the **show aaa local user** command with the **lockout** keyword to display the number of failed authentication attempts and lockout status details only for any locked-out AAA local users, after the limit has been set to 5:

```
hostname(config)# aaa local authentication attempts max-fail 5
hostname(config)# show aaa local user
Lock-time  Failed-attempts      Locked  User
    -                  6       Y       test
hostname(config)#
```

Related Commands

Command	Description
aaa local authentication attempts max-fail	Configures the maximum number of times a user can enter a wrong password before being locked out.
clear aaa local user fail-attempts	Resets the number of failed attempts to 0 without modifying the lockout status.
clear aaa local user lockout	Clears th e lockout status of the specified user or all users and sets their failed attempts counters to 0.

show aaa-server

To display AAA server statistics for AAA servers, use the **show aaa-server** command in privileged EXEC mode.

show aaa-server [**LOCAL** | *groupname* [**host** *hostname*] | **protocol** *protocol*]

Syntax Description

LOCAL	(Optional) Shows statistics for the LOCAL user database.
groupname	(Optional) Shows statistics for servers in a group.
host *hostname*	(Optional) Shows statistics for a particular server in the group.
protocol *protocol*	(Optional) Shows statistics for servers of the following specified protocols: • **kerberos** • **ldap** • **nt** • **radius** • **sdi** • **tacacs+**

Defaults

By default, all AAA server statistics display.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.1(1)	The http-form protocol was added.
8.0(2)	The server status shows if the status was changed manually using the **aaa-server active** command or **fail** command.

Examples

The following is sample output from the **show aaa-server** command:

```
hostname(config)# show aaa-server group1 host 192.68.125.60
Server Group:  group1
Server Protocol: RADIUS
Server Address:  192.68.125.60
Server port:  1645
Server status: ACTIVE. Last transaction (success) at 11:10:08 UTC  Fri Aug 22
Number of pending requests        20
```

```
Average round trip time           4ms
Number of authentication requests 20
Number of authorization requests  0
Number of accounting requests     0
Number of retransmissions         1
Number of accepts                 16
Number of rejects                 4
Number of challenges              5
Number of malformed responses     0
Number of bad authenticators      0
Number of timeouts                0
Number of unrecognized responses  0
```

The following table shows field descriptions for the **show aaa-server** command:

Field	Description
Server Group	The server group name specified by the **aaa-server** command.
Server Protocol	The server protocol for the server group specified by the **aaa-server** command.
Server Address	The IP address of the AAA server.
Server port	The communication port used by the ASA and the AAA server. You can specify the RADIUS authentication port using the **authentication-port** command. You can specify the RADIUS accounting port using the **accounting-port** command. For non-RADIUS servers, the port is set by the **server-port** command.
Server status	The status of the server. One of the following values appears: • ACTIVE—The ASA will communicate with this AAA server. • FAILED—The ASA cannot communicate with the AAA server. Servers that are put into this state remain there for some period of time, depending on the policy configured, and are then reactivated. If the status is followed by "(admin initiated)," then the server was manually failed or reactivated using the **aaa-server active** command or **fail** command. The date and time of the last transaction appear in the following form: **Last transaction ({success | failure}) at** *time timezone date* If the ASA has never communicated with the server, the message shows as the following: **Last transaction at Unknown**
Number of pending requests	The number of requests that are still in progress.
Average round trip time	The average time that it takes to complete a transaction with the server.
Number of authentication requests	The number of authentication requests sent by the ASA. This value does not include retransmissions after a timeout.

Field	Description
Number of authorization requests	The number of authorization requests. This value refers to authorization requests due to command authorization, authorization for through-the-box traffic (for TACACS+ servers), or for WebVPN and IPsec authorization functionality enabled for a tunnel group. This value does not include retransmissions after a timeout.
Number of accounting requests	The number of accounting requests. This value does not include retransmissions after a timeout.
Number of retransmissions	The number of times a message was retransmitted after an internal timeout. This value applies only to Kerberos and RADIUS servers (UDP).
Number of accepts	The number of successful authentication requests.
Number of rejects	The number of rejected requests. This value includes error conditions as well as true credential rejections from the AAA server.
Number of challenges	The number of times the AAA server required additional information from the user after receiving the initial username and password information.
Number of malformed responses	N/A. Reserved for future use.
Number of bad authenticators	The number of times that one of the following occurs: • The "authenticator" string in the RADIUS packet is corrupted (rare). • The shared secret key on the ASA does not match the one on the RADIUS server. To fix this problem, enter the correct server key. This value only applies to RADIUS.
Number of timeouts	The number of times the ASA has detected that a AAA server is not responsive or otherwise misbehaving and has declared it offline.
Number of unrecognized responses	The number of times that the ASA received a response from the AAA server that it could not recognize or support. For example, the RADIUS packet code from the server was an unknown type, something other than the known "access-accept," "access-reject," "access-challenge," or "accounting-response" types. Typically, this means that the RADIUS response packet from the server was corrupted, which is rare.

Related Commands

Command	Description
show running-config aaa-server	Displays statistics for all servers in the indicated server group or for a particular server.
clear aaa-server statistics	Clears the AAA server statistics.

show access-list

To display the hit counters and a timestamp value for an access list, use the **show access-list** command in privileged EXEC mode.

show access-list *id_1* [...[*id_2*]] [**brief**]

Syntax Description

brief	(Optional) Displays the access list identifiers, the hit count, and the timestamp of the last rule hit, all in hexadecimal format.
id_1	A name or set of characters that identifies an existing access list.
id_2	(Optional) A name or set of characters that identifies an existing access list.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.0(2)	Support for the **brief** keyword was introduced.
8.3(1)	Modified ACE show pattern to display ACL timestamp.

Usage Guidelines

You can display multiple access lists at one time by entering the access list identifiers in one command.

You can specify the **brief** keyword to display access list hit count, identifiers, and timestamp information in hexadecimal format. The configuration identifiers displayed in hexadecimal format are presented in three columns, and they are the same identifiers used in syslogs 106023 and 106100.

Clustering Guidelines

When using ASA clustering, if traffic is received by a single unit, the other units may still show a hit count for the ACL due to the clustering director logic. This is an expected behavior. Because the unit that did not receive any packets directly from the client may receive forwarded packets over the cluster control link for an owner request, the unit may check the ACL before sending the packet back to the receiving unit. As a result, the ACL hit count will be increased even though the unit did not pass the traffic.

Examples

The following examples show brief information about the specified access policy in hexadecimal format (ACEs in which the hitcount is not zero). The first two columns display identifiers in hexadecimal format, the third column lists the hit count, and the fourth column displays the timestamp value, also in hexadecimal format. The hit count value represents the number of times the rule has been hit by traffic. The timestamp value reports the time of the last hit. If the hit count is zero, no information is displayed.

The following is sample output from the **show access-list** command and shows the access list name "test," which is applied on an outside interface in the "IN" direction:

```
hostname# show access-list test
access-list test; 3 elements; name hash: 0xcb4257a3
access-list test line 1 extended permit icmp any any (hitcnt=0) 0xb422e9c2
access-list test line 2 extended permit object-group TELNET-SSH object-group S1
object-group D1 0x44ae5901
  access-list test line 2 extended permit tcp 100.100.100.0 255.255.255.0 10.10.10.0
255.255.255.0 eq telnet (hitcnt=1) 0xca10ca21
  access-list test line 2 extended permit tcp 100.100.100.0 255.255.255.0 10.10.10.0
255.255.255.0 eq ssh(hitcnt=1) 0x5b704158
```

The following is sample output from the **show access-list** command when **object-group-search** group is not enabled:

```
hostname# show access-list KH-BLK-Tunnel
access-list KH-BLK-Tunnel; 9 elements
access-list KH-BLK-Tunnel line 1 extended permit ip object-group KH-LAN object-group
BLK-LAN 0x724c956b
   access-list KH-BLK-Tunnel line 1 extended permit ip 192.168.97.0 255.255.255.0
192.168.4.0 255.255.255.0 (hitcnt=10) 0x30fe29a6
   access-list KH-BLK-Tunnel line 1 extended permit ip 13.13.13.0 255.255.255.0
192.168.4.0 255.255.255.0 (hitcnt=4) 0xc6ef2338
   access-list KH-BLK-Tunnel line 1 extended permit ip 192.168.97.0 255.255.255.0
14.14.14.0 255.255.255.0 (hitcnt=2) 0xce8596ec
   access-list KH-BLK-Tunnel line 1 extended permit ip 13.13.13.0 255.255.255.0 14.14.14.0
255.255.255.0 (hitcnt=0) 0x9a2f1c4d
access-list KH-BLK-Tunnel line 2 extended permit ospf interface pppoe1 host 87.139.87.200
(hitcnt=0) 0xb62d5832
access-list KH-BLK-Tunnel line 3 extended permit ip interface pppoe1 any (hitcnt=0)
0xa2c9ed34
access-list KH-BLK-Tunnel line 4 extended permit ip host 1.1.1.1 any (hitcnt=0) 0xd06f7e6b
access-list KH-BLK-Tunnel line 5 extended deny ip 1.1.0.0 255.255.0.0 any (hitcnt=0)
0x9d979934
access-list KH-BLK-Tunnel line 6 extended permit ip 1.1.1.0 255.255.255.0 any (hitcnt=0)
0xa52a0761
```

The following is sample output from the **show access-list** command when **object-group-search** group is enabled:

```
hostname# show access-list KH-BLK-Tunnel
access-list KH-BLK-Tunnel; 6 elements
access-list KH-BLK-Tunnel line 1 extended permit ip object-group KH-LAN(1) object-group
BLK-LAN(2)(hitcount=16) 0x724c956b
access-list KH-BLK-Tunnel line 2 extended permit ospf interface pppoe1 host 87.139.87.200
(hitcnt=0) 0xb62d5832
access-list KH-BLK-Tunnel line 3 extended permit ip interface pppoe1 any (hitcnt=0)
0xa2c9ed34
access-list KH-BLK-Tunnel line 4 extended permit ip host 1.1.1.1 any (hitcnt=0) 0xd06f7e6b
access-list KH-BLK-Tunnel line 5 extended deny ip 1.1.0.0 255.255.0.0 any (hitcnt=0)
0x9d979934
access-list KH-BLK-Tunnel line 6 extended permit ip 1.1.1.0 255.255.255.0 any (hitcnt=0)
0xa52a0761
```

The following is sample output from the **show access-list brief** command when Telnet traffic is passed:

```
hostname (config)# sh access-list test brief
access-list test; 3 elements; name hash: 0xcb4257a3
ca10ca21 44ae5901 00000001 4a68aa7e
```

The following is sample output from the **show access-list brief** command when SSH traffic is passed:

```
hostname (config)# sh access-list test brief
access-list test; 3 elements; name hash: 0xcb4257a3
ca10ca21 44ae5901 00000001 4a68aa7e
5b704158 44ae5901 00000001 4a68aaa9
```

The following is sample output from the **show access-list** command and shows the access list name "test," which is applied on an outside interface in the "IN" direction, with ACL Optimization enabled:

```
hostname# show access-list test
access-list test; 3 elements; name hash: 0xcb4257a3
access-list test line 1 extended permit icmp any any (hitcnt=0) 0xb422e9c2
access-list test line 2 extended permit object-group TELNET-SSH object-group S1
object-group D1 0x44ae5901
  access-list test line 2 extended permit tcp object-group S1(1) object-group D1(2) eq
telnet (hitcnt=1) 0x7b1c1660
  access-list test line 2 extended permit tcp object-group S1(1) object-group D1(2) eq ssh
(hitcnt=1) 0x3666f922
```

The following is sample output from the **show access-list brief** command when Telnet traffic is passed:

```
hostname (config)# sh access-list test brief
access-list test; 3 elements; name hash: 0xcb4257a3
7b1c1660 44ae5901 00000001 4a68ab51
```

The following is sample output from the **show access-list brief** command when SSH traffic is passed:

```
hostname (config)# sh access-list test brief
access-list test; 3 elements; name hash: 0xcb4257a3
7b1c1660 44ae5901 00000001 4a68ab51
3666f922 44ae5901 00000001 4a68ab66
```

Related Commands

Command	Description
access-list ethertype	Configures an access list that controls traffic based on its EtherType.
access-list extended	Adds an access list to the configuration and configures policy for IP traffic through the firewall.
clear access-list	Clears an access list counter.
clear configure access-list	Clears an access list from the running configuration.
show running-config access-list	Displays the current running access-list configuration.

show activation-key

To display the permanent license, active time-based licenses, and the running license, which is a combination of the permanent license and active time-based licenses. use the **show activation-key** command in privileged EXEC mode. For failover units, this command also shows the "Failover cluster" license, which is the combined keys of the primary and secondary units.

show activation-key [detail]

Syntax Description

detail	Shows inactive time-based licenses.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.
8.0(4)	The **detail** keyword was added.
8.2(1)	The output was modified to include additional licensing information.
8.3(1)	The output now includes whether a feature uses the permanent or time-based key, as well as the duration of the time-based key in use. It also shows all installed time-based keys, both active and inactive.
8.4(1)	Support for No Payload Encryption models.

Usage Guidelines

Some permanent licenses require you to reload the ASA after you activate them. Table 44-1 lists the licenses that require reloading.

Table 44-1 Permanent License Reloading Requirements

Model	License Action Requiring Reload
ASA 5505 and ASA 5510	Changing between the Base and Security Plus license.
All models	Changing the Encryption license.
All models	Downgrading any permanent license (for example, going from 10 contexts to 2 contexts).

If you need to reload, then the **show activation-key** output reads as follows:

```
The flash activation key is DIFFERENT from the running key.

The flash activation key takes effect after the next reload.
```

If you have a No Payload Encryption model, then when you view the license, VPN and Unified Communications licenses will not be listed.

Examples

Example 44-1 Standalone Unit Output for show activation-key

The following is sample output from the **show activation-key** command for a standalone unit that shows the running license (the combined permanent license and time-based licenses), as well as each active time-based license:

```
hostname# show activation-key

Serial Number:  JMX1232L11M
Running Permanent Activation Key: 0xce06dc6b 0x8a7b5ab7 0xa1e21dd4 0xd2c4b8b8 0xc4594f9c
Running Timebased Activation Key: 0xa821d549 0x35725fe4 0xc918b97b 0xce0b987b 0x47c7c285
Running Timebased Activation Key: 0xyadayad2 0xyadayad2 0xyadayad2 0xyadayad2 0xyadayad2

Licensed features for this platform:
Maximum Physical Interfaces  : Unlimited  perpetual
Maximum VLANs                : 50         perpetual
Inside Hosts                 : Unlimited  perpetual
Failover                     : Disabled   perpetual
VPN-DES                      : Enabled    perpetual
VPN-3DES-AES                 : Enabled    perpetual
Security Contexts            : 0          perpetual
GTP/GPRS                     : Disabled   perpetual
SSL VPN Peers                : 2          perpetual
Total VPN Peers              : 250        perpetual
Shared License               : Disabled   perpetual
AnyConnect for Mobile        : Disabled   perpetual
AnyConnect for Linksys phone : Disabled   perpetual
AnyConnect Essentials        : Enabled    perpetual
Advanced Endpoint Assessment : Disabled   perpetual
UC Phone Proxy Sessions      : 12         62 days
Total UC Proxy Sessions      : 12         62 days
Botnet Traffic Filter        : Enabled    646 days

This platform has a Base license.

The flash permanent activation key is the SAME as the running permanent key.

Active Timebased Activation Key:
0xa821d549 0x35725fe4 0xc918b97b 0xce0b987b 0x47c7c285
Botnet Traffic Filter        : Enabled    646 days

0xyadayad2 0xyadayad2 0xyadayad2 0xyadayad2 0xyadayad2
Total UC Proxy Sessions      : 10         62 days
```

Example 44-2 Standalone Unit Output for show activation-key detail

The following is sample output from the **show activation-key detail** command for a standalone unit that shows the running license (the combined permanent license and time-based licenses), as well as the permanent license and each installed time-based license (active and inactive):

```
hostname# show activation-key detail
```

```
Serial Number:  88810093382
Running Permanent Activation Key: 0xce06dc6b 0x8a7b5ab7 0xa1e21dd4 0xd2c4b8b8 0xc4594f9c
Running Timebased Activation Key: 0xa821d549 0x35725fe4 0xc918b97b 0xce0b987b 0x47c7c285

Licensed features for this platform:
Maximum Physical Interfaces    : 8              perpetual
VLANs                          : 20             DMZ Unrestricted
Dual ISPs                      : Enabled        perpetual
VLAN Trunk Ports               : 8              perpetual
Inside Hosts                   : Unlimited      perpetual
Failover                       : Active/Standby perpetual
VPN-DES                        : Enabled        perpetual
VPN-3DES-AES                   : Enabled        perpetual
SSL VPN Peers                  : 2              perpetual
Total VPN Peers                : 25             perpetual
Shared License                 : Disabled       perpetual
AnyConnect for Mobile          : Disabled       perpetual
AnyConnect for Cisco VPN Phone : Disabled       perpetual
AnyConnect Essentials          : Disabled       perpetual
Advanced Endpoint Assessment   : Disabled       perpetual
UC Phone Proxy Sessions        : 2              perpetual
Total UC Proxy Sessions        : 2              perpetual
Botnet Traffic Filter          : Enabled        39 days
Intercompany Media Engine      : Disabled       perpetual

This platform has an ASA 5505 Security Plus license.

Running Permanent Activation Key: 0xce06dc6b 0x8a7b5ab7 0xa1e21dd4 0xd2c4b8b8 0xc4594f9c

Licensed features for this platform:
Maximum Physical Interfaces    : 8              perpetual
VLANs                          : 20             DMZ Unrestricted
Dual ISPs                      : Enabled        perpetual
VLAN Trunk Ports               : 8              perpetual
Inside Hosts                   : Unlimited      perpetual
Failover                       : Active/Standby perpetual
VPN-DES                        : Enabled        perpetual
VPN-3DES-AES                   : Enabled        perpetual
SSL VPN Peers                  : 2              perpetual
Total VPN Peers                : 25             perpetual
Shared License                 : Disabled       perpetual
AnyConnect for Mobile          : Disabled       perpetual
AnyConnect for Cisco VPN Phone : Disabled       perpetual
AnyConnect Essentials          : Disabled       perpetual
Advanced Endpoint Assessment   : Disabled       perpetual
UC Phone Proxy Sessions        : 2              perpetual
Total UC Proxy Sessions        : 2              perpetual
Botnet Traffic Filter          : Disabled       perpetual
Intercompany Media Engine      : Disabled       perpetual

The flash permanent activation key is the SAME as the running permanent key.

Active Timebased Activation Key:
0xa821d549 0x35725fe4 0xc918b97b 0xce0b987b 0x47c7c285
Botnet Traffic Filter           : Enabled    39 days

Inactive Timebased Activation Key:
0xyadayada3 0xyadayada3 0xyadayada3 0xyadayada3 0xyadayada3
SSL VPN Peers                   : 100        7 days
```

Example 44-3 Primary Unit Output in a Failover Pair for show activation-key detail

The following is sample output from the **show activation-key detail** command for the primary failover unit that shows:

- The primary unit license (the combined permanent license and time-based licenses).
- The "Failover Cluster" license, which is the combined licenses from the primary and secondary units. This is the license that is actually running on the ASA. The values in this license that reflect the combination of the primary and secondary licenses are in bold.
- The primary unit permanent license.
- The primary unit installed time-based licenses (active and inactive).

```
hostname# show activation-key detail

Serial Number:  P3000000171
Running Permanent Activation Key: 0xce06dc6b 0x8a7b5ab7 0xa1e21dd4 0xd2c4b8b8 0xc4594f9c
Running Timebased Activation Key: 0xa821d549 0x35725fe4 0xc918b97b 0xce0b987b 0x47c7c285

Licensed features for this platform:
Maximum Physical Interfaces    : Unlimited      perpetual
Maximum VLANs                  : 150            perpetual
Inside Hosts                   : Unlimited      perpetual
Failover                       : Active/Active  perpetual
VPN-DES                        : Enabled        perpetual
VPN-3DES-AES                   : Enabled        perpetual
Security Contexts              : 10             perpetual
GTP/GPRS                       : Enabled        perpetual
SSL VPN Peers                  : 2              perpetual
Total VPN Peers                : 750            perpetual
Shared License                 : Disabled       perpetual
AnyConnect for Mobile          : Disabled       perpetual
AnyConnect for Cisco VPN Phone : Disabled       perpetual
AnyConnect Essentials          : Disabled       perpetual
Advanced Endpoint Assessment   : Disabled       perpetual
UC Phone Proxy Sessions        : 2              perpetual
Total UC Proxy Sessions        : 2              perpetual
Botnet Traffic Filter          : Enabled        33 days
Intercompany Media Engine      : Disabled       perpetual

This platform has an ASA 5520 VPN Plus license.

Failover cluster licensed features for this platform:
Maximum Physical Interfaces    : Unlimited      perpetual
Maximum VLANs                  : 150            perpetual
Inside Hosts                   : Unlimited      perpetual
Failover                       : Active/Active  perpetual
VPN-DES                        : Enabled        perpetual
VPN-3DES-AES                   : Enabled        perpetual
Security Contexts              : 10             perpetual
GTP/GPRS                       : Enabled        perpetual
SSL VPN Peers                  : 4              perpetual
Total VPN Peers                : 750            perpetual
Shared License                 : Disabled       perpetual
AnyConnect for Mobile          : Disabled       perpetual
AnyConnect for Cisco VPN Phone : Disabled       perpetual
AnyConnect Essentials          : Disabled       perpetual Advanced Endpoint Assessment   :
Disabled       perpetual
UC Phone Proxy Sessions        : 4              perpetual
Total UC Proxy Sessions        : 4              perpetual
Botnet Traffic Filter          : Enabled        33 days
Intercompany Media Engine      : Disabled       perpetual
```

```
This platform has an ASA 5520 VPN Plus license.

Running Permanent Activation Key: 0xce06dc6b 0x8a7b5ab7 0xa1e21dd4 0xd2c4b8b8 0xc4594f9c

Licensed features for this platform:
Maximum Physical Interfaces    : Unlimited      perpetual
Maximum VLANs                  : 150            perpetual
Inside Hosts                   : Unlimited      perpetual
Failover                       : Active/Active  perpetual
VPN-DES                        : Enabled        perpetual
VPN-3DES-AES                   : Disabled       perpetual
Security Contexts              : 2              perpetual
GTP/GPRS                       : Disabled       perpetual
SSL VPN Peers                  : 2              perpetual
Total VPN Peers                : 750            perpetual
Shared License                 : Disabled       perpetual
AnyConnect for Mobile          : Disabled       perpetual
AnyConnect for Cisco VPN Phone : Disabled       perpetual
AnyConnect Essentials          : Disabled       perpetual
Advanced Endpoint Assessment   : Disabled       perpetual
UC Phone Proxy Sessions        : 2              perpetual
Total UC Proxy Sessions        : 2              perpetual
Botnet Traffic Filter          : Disabled       perpetual
Intercompany Media Engine      : Disabled       perpetual

The flash permanent activation key is the SAME as the running permanent key.

Active Timebased Activation Key:
0xa821d549 0x35725fe4 0xc918b97b 0xce0b987b 0x47c7c285
Botnet Traffic Filter           : Enabled    33 days

Inactive Timebased Activation Key:
0xyadayad3 0xyadayad3 0xyadayad3 0xyadayad3 0xyadayad3
Security Contexts               : 2          7 days
SSL VPN Peers                   : 100        7 days

0xyadayad4 0xyadayad4 0xyadayad4 0xyadayad4 0xyadayad4
Total UC Proxy Sessions         : 100        14 days
```

Example 44-4 Secondary Unit Output in a Failover Pair for show activation-key detail

The following is sample output from the **show activation-key detail** command for the secondary failover unit that shows:

- The secondary unit license (the combined permanent license and time-based licenses).
- The "Failover Cluster" license, which is the combined licenses from the primary and secondary units. This is the license that is actually running on the ASA. The values in this license that reflect the combination of the primary and secondary licenses are in bold.
- The secondary unit permanent license.
- The secondary installed time-based licenses (active and inactive). This unit does not have any time-based licenses, so none display in this sample output.

```
hostname# show activation-key detail

Serial Number:  P3000000011
Running Activation Key: 0xyadayad1 0xyadayad1 0xyadayad1 0xyadayad1 0xyadayad1

Licensed features for this platform:
Maximum Physical Interfaces    : Unlimited      perpetual
Maximum VLANs                  : 150            perpetual
```

```
Inside Hosts                  : Unlimited      perpetual
Failover                      : Active/Active  perpetual
VPN-DES                       : Enabled        perpetual
VPN-3DES-AES                  : Disabled       perpetual
Security Contexts             : 2              perpetual
GTP/GPRS                      : Disabled       perpetual
SSL VPN Peers                 : 2              perpetual
Total VPN Peers               : 750            perpetual
Shared License                : Disabled       perpetual
AnyConnect for Mobile         : Disabled       perpetual
AnyConnect for Cisco VPN Phone : Disabled      perpetual
AnyConnect Essentials         : Disabled       perpetual
Advanced Endpoint Assessment  : Disabled       perpetual
UC Phone Proxy Sessions       : 2              perpetual
Total UC Proxy Sessions       : 2              perpetual
Botnet Traffic Filter         : Disabled       perpetual
Intercompany Media Engine     : Disabled       perpetual

This platform has an ASA 5520 VPN Plus license.

Failover cluster licensed features for this platform:
Maximum Physical Interfaces   : Unlimited      perpetual
Maximum VLANs                 : 150            perpetual
Inside Hosts                  : Unlimited      perpetual
Failover                      : Active/Active  perpetual
VPN-DES                       : Enabled        perpetual
VPN-3DES-AES                  : Enabled        perpetual
Security Contexts             : 10             perpetual
GTP/GPRS                      : Enabled        perpetual
SSL VPN Peers                 : 4              perpetual
Total VPN Peers               : 750            perpetual
Shared License                : Disabled       perpetual
AnyConnect for Mobile         : Disabled       perpetual
AnyConnect for Cisco VPN Phone : Disabled      perpetual
AnyConnect Essentials         : Disabled       perpetual
Advanced Endpoint Assessment  : Disabled       perpetual
UC Phone Proxy Sessions       : 4              perpetual
Total UC Proxy Sessions       : 4              perpetual
Botnet Traffic Filter         : Enabled        33 days
Intercompany Media Engine     : Disabled       perpetual

This platform has an ASA 5520 VPN Plus license.

Running Permanent Activation Key: 0xyadayad1 0xyadayad1 0xyadayad1 0xyadayad1 0xyadayad1

Licensed features for this platform:
Maximum Physical Interfaces   : Unlimited      perpetual
Maximum VLANs                 : 150            perpetual
Inside Hosts                  : Unlimited      perpetual
Failover                      : Active/Active  perpetual
VPN-DES                       : Enabled        perpetual
VPN-3DES-AES                  : Disabled       perpetual
Security Contexts             : 2              perpetual
GTP/GPRS                      : Disabled       perpetual
SSL VPN Peers                 : 2              perpetual
Total VPN Peers               : 750            perpetual
Shared License                : Disabled       perpetual
AnyConnect for Mobile         : Disabled       perpetual
AnyConnect for Cisco VPN Phone : Disabled      perpetual
AnyConnect Essentials         : Disabled       perpetual
Advanced Endpoint Assessment  : Disabled       perpetual
UC Phone Proxy Sessions       : 2              perpetual
Total UC Proxy Sessions       : 2              perpetual
Botnet Traffic Filter         : Disabled       perpetual
```

```
Intercompany Media Engine      : Disabled       perpetual

The flash permanent activation key is the SAME as the running permanent key.
```

Related Commands

Command	Description
activation-key	Changes the activation key.

show ad-groups

To display groups that are listed on an Active Directory server, use the **show ad-groups** command in privileged EXEC mode:

show ad-groups *name* [**filter** *string*]

Syntax Description

name	The name of the Active Directory server group to query.
string	A string within quotes specifying all or part of the group name to search for.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC mode	•	—	•	—	—

Command History

Release	Modification
8.0(4)	This command was introduced.

Usage Guidelines

The **show ad-groups** command applies only to Active Directory servers that use the LDAP protocol to retrieve groups. Use this command to display AD groups that you can use for dynamic access policy AAA selection criteria.

When the LDAP attribute type = LDAP, the default time that the ASA waits for a response from the server is 10 seconds. You can adjust this time using the **group-search-timeout** command in aaa-server host configuration mode.

Note If the Active Directory server has a large number of groups, the output of the **show ad-groups** command may be truncated based on limitations of the amount of data the server can fit into a response packet. To avoid this problem, use the **filter** option to reduce the number of groups reported by the server.

Examples

```
hostname# show ad-groups LDAP-AD17
Server Group   LDAP-AD17
Group list retrieved successfully
Number of Active Directory Groups     46
Account Operators
Administrators
APP-SSL-VPN CIO Users
Backup Operators
Cert Publishers
CERTSVC_DCOM_ACCESS
Cisco-Eng
DHCP Administrators
DHCP Users
Distributed COM Users
DnsAdmins
DnsUpdateProxy
Doctors
Domain Admins
Domain Computers
Domain Controllers
Domain Guests
Domain Users
Employees
Engineering
Engineering1
Engineering2
Enterprise Admins
Group Policy Creator Owners
Guests
HelpServicesGroup
```

The next example shows the same command with the **filter** option:

```
hostname(config)# show ad-groups LDAP-AD17 filter "Eng"
.
Server Group   LDAP-AD17
Group list retrieved successfully
Number of Active Directory Groups     4
Cisco-Eng
Engineering
Engineering1
Engineering2
```

Related Commands

Command	Description
ldap-group-base-dn	Specifies a level in the Active Directory hierarchy where the server begins searching for groups that are used by dynamic group policies.
group-search-timeout	Adjusts the time the ASA waits for a response from an Active Directory server for a list of groups.

show admin-context

To display the context name currently assigned as the admin context, use the **show admin-context** command in privileged EXEC mode.

show admin-context

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show admin-context** command. The following example shows the admin context called “admin” and stored in the root directory of flash:

```
hostname# show admin-context
Admin: admin flash:/admin.cfg
```

Related Commands

Command	Description
admin-context	Sets the admin context.
changeto	Changes between contexts or the system execution space.
clear configure context	Removes all contexts.
mode	Sets the context mode to single or multiple.
show context	Shows a list of contexts (system execution space) or information about the current context.

show arp

To view the ARP table, use the **show arp** command in privileged EXEC mode.

show arp

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(8)/7.2(4)/8.0(4)	Added dynamic ARP age to the display.

Usage Guidelines

The display output shows dynamic, static, and proxy ARP entries. Dynamic ARP entries include the age of the ARP entry in seconds. Static ARP entries include a dash (-) instead of the age, and proxy ARP entries state “alias.”

Examples

The following is sample output from the **show arp** command. The first entry is a dynamic entry aged 2 seconds. The second entry is a static entry, and the third entry is from proxy ARP.

```
hostname# show arp
        outside 10.86.194.61 0011.2094.1d2b 2
        outside 10.86.194.1 001a.300c.8000 -
        outside 10.86.195.2 00d0.02a8.440a alias
```

Related Commands

Command	Description
arp	Adds a static ARP entry.
arp-inspection	For transparent firewall mode, inspects ARP packets to prevent ARP spoofing.
clear arp statistics	Clears ARP statistics.
show arp statistics	Shows ARP statistics.
show running-config arp	Shows the current configuration of the ARP timeout.

show arp-inspection

To view the ARP inspection setting for each interface, use the **show arp-inspection** command in privileged EXEC mode.

show arp-inspection

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	—	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show arp-inspection** command:

```
hostname# show arp-inspection
interface               arp-inspection         miss
-----------------------------------------------------
inside1                 enabled                flood
outside                 disabled                -
```

The **miss** column shows the default action to take for non-matching packets when ARP inspection is enabled, either “flood” or “no-flood.”

Related Commands

Command	Description
arp	Adds a static ARP entry.
arp-inspection	For transparent firewall mode, inspects ARP packets to prevent ARP spoofing.
clear arp statistics	Clears ARP statistics.
show arp statistics	Shows ARP statistics.
show running-config arp	Shows the current configuration of the ARP timeout.

show arp statistics

To view ARP statistics, use the show arp statistics command in privileged EXEC mode.

show arp statistics

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show arp statistics** command:

```
hostname# show arp statistics
        Number of ARP entries:
        ASA : 6
        Dropped blocks in ARP: 6
        Maximum Queued blocks: 3
        Queued blocks: 1
        Interface collision ARPs Received: 5
        ARP-defense Gratuitous ARPS sent: 4
        Total ARP retries: 15
        Unresolved hosts: 1
        Maximum Unresolved hosts: 2
```

Table 2 shows each field description.

Table 44-2 show arp statistics Fields

Field	Description
Number of ARP entries	The total number of ARP table entries.
Dropped blocks in ARP	The number of blocks that were dropped while IP addresses were being resolved to their corresponding hardware addresses.
Maximum queued blocks	The maximum number of blocks that were ever queued in the ARP module, while waiting for the IP address to be resolved.

Table 44-2 show arp statistics Fields (continued)

Field	Description
Queued blocks	The number of blocks currently queued in the ARP module.
Interface collision ARPs received	The number of ARP packets received at all ASA interfaces that were from the same IP address as that of an ASA interface.
ARP-defense gratuitous ARPs sent	The number of gratuitous ARPs sent by the ASA as part of the ARP-Defense mechanism.
Total ARP retries	The total number of ARP requests sent by the ARP module when the address was not resolved in response to first ARP request.
Unresolved hosts	The number of unresolved hosts for which ARP requests are still being sent out by the ARP module.
Maximum unresolved hosts	The maximum number of unresolved hosts that ever were in the ARP module since it was last cleared or the ASA booted up.

Related Commands

Command	Description
arp-inspection	For transparent firewall mode, inspects ARP packets to prevent ARP spoofing.
clear arp statistics	Clears ARP statistics and resets the values to zero.
show arp	Shows the ARP table.
show running-config arp	Shows the current configuration of the ARP timeout.

show asdm history

To display the contents of the ASDM history buffer, use the **show asdm history** command in privileged EXEC mode.

show asdm history [**view** *timeframe*] [**snapshot**] [**feature** *feature*] [**asdmclient**]

Syntax Description

asdmclient	(Optional) Displays the ASDM history data formatted for the ASDM client.
feature *feature*	(Optional) Limits the history display to the specified feature. The following are valid values for the *feature* argument: • **all**—Displays the history for all features (default). • **blocks**—Displays the history for the system buffers. • **cpu**—Displays the history for CPU usage. • **failover**—Displays the history for failover. • **ids**—Displays the history for IDS. • **interface** *if_name*—Displays the history for the specified interface. The *if_name* argument is the name of the interface as specified by the **nameif** command. • **memory**—Displays memory usage history. • **perfmon**—Displays performance history. • **sas**—Displays the history for Security Associations. • **tunnels**—Displays the history for tunnels. • **xlates**—Displays translation slot history.
snapshot	(Optional) Displays only the last ASDM history data point.
view *timeframe*	(Optional) Limits the history display to the specified time period. Valid values for the *timeframe* argument are: • **all**—all contents in the history buffer (default). • **12h**—12 hours • **5d**—5 days • **60m**—60 minutes • **10m**—10 minutes

Defaults

If no arguments or keywords are specified, all history information for all features is displayed.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was changed from the **show pdm history** command to the **show asdm history** command.

Usage Guidelines

The **show asdm history** command displays the contents of the ASDM history buffer. Before you can view ASDM history information, you must enable ASDM history tracking using the **asdm history enable** command.

Examples

The following is sample output from the **show asdm history** command. It limits the output to data for the outside interface collected during the last 10 minutes.

```
hostname# show asdm history view 10m feature interface outside

Input KByte Count:
        [  10s:12:46:41 Mar 1 2005  ] 62640 62636 62633 62628 62622 62616 62609
Output KByte Count:
        [  10s:12:46:41 Mar 1 2005  ] 25178 25169 25165 25161 25157 25151 25147
Input KPacket Count:
        [  10s:12:46:41 Mar 1 2005  ]   752   752   751   751   751   751   751
Output KPacket Count:
        [  10s:12:46:41 Mar 1 2005  ]    55    55    55    55    55    55    55
Input Bit Rate:
        [  10s:12:46:41 Mar 1 2005  ]  3397  2843  3764  4515  4932  5728  4186
Output Bit Rate:
        [  10s:12:46:41 Mar 1 2005  ]  7316  3292  3349  3298  5212  3349  3301
Input Packet Rate:
        [  10s:12:46:41 Mar 1 2005  ]     5     4     6     7     6     8     6
Output Packet Rate:
        [  10s:12:46:41 Mar 1 2005  ]     1     0     0     0     0     0     0
Input Error Packet Count:
        [  10s:12:46:41 Mar 1 2005  ]     0     0     0     0     0     0     0
No Buffer:
        [  10s:12:46:41 Mar 1 2005  ]     0     0     0     0     0     0     0
Received Broadcasts:
        [  10s:12:46:41 Mar 1 2005  ] 375974 375954 375935 375902 375863 375833 375794
Runts:
        [  10s:12:46:41 Mar 1 2005  ]     0     0     0     0     0     0     0
Giants:
        [  10s:12:46:41 Mar 1 2005  ]     0     0     0     0     0     0     0
CRC:
        [  10s:12:46:41 Mar 1 2005  ]     0     0     0     0     0     0     0
Frames:
        [  10s:12:46:41 Mar 1 2005  ]     0     0     0     0     0     0     0
Overruns:
        [  10s:12:46:41 Mar 1 2005  ]     0     0     0     0     0     0     0
Underruns:
```

```
        [  10s:12:46:41 Mar 1 2005  ]     0     0     0     0     0     0     0
Output Error Packet Count:
        [  10s:12:46:41 Mar 1 2005  ]     0     0     0     0     0     0     0
Collisions:
        [  10s:12:46:41 Mar 1 2005  ]     0     0     0     0     0     0     0
LCOLL:
        [  10s:12:46:41 Mar 1 2005  ]     0     0     0     0     0     0     0
Reset:
        [  10s:12:46:41 Mar 1 2005  ]     0     0     0     0     0     0     0
Deferred:
        [  10s:12:46:41 Mar 1 2005  ]     0     0     0     0     0     0     0
Lost Carrier:
        [  10s:12:46:41 Mar 1 2005  ]     0     0     0     0     0     0     0
Hardware Input Queue:
        [  10s:12:46:41 Mar 1 2005  ]   128   128   128   128   128   128   128
Software Input Queue:
        [  10s:12:46:41 Mar 1 2005  ]     0     0     0     0     0     0     0
Hardware Output Queue:
        [  10s:12:46:41 Mar 1 2005  ]     0     0     0     0     0     0     0
Software Output Queue:
        [  10s:12:46:41 Mar 1 2005  ]     0     0     0     0     0     0     0
Drop KPacket Count:
        [  10s:12:46:41 Mar 1 2005  ]     0     0     0     0     0     0     0
hostname#
```

The following is sample output from the **show asdm history** command. Like the previous example, it limits the output to data for the outside interface collected during the last 10 minutes. However, in this example the output is formatted for the ASDM client.

```
hostname# show asdm history view 10m feature interface outside asdmclient

MH|IBC|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|62439|62445|62453|62457|62464|6
2469|62474|62486|62489|62496|62501|62506|62511|62518|62522|62530|62534|62539|62542|62547|6
2553|62556|62562|62568|62574|62581|62585|62593|62598|62604|62609|62616|62622|62628|62633|6
2636|62640|62653|62657|62665|62672|62678|62681|62686|62691|62695|62700|62704|62711|62718|6
2723|62728|62733|62738|62742|62747|62751|62761|62770|62775|
MH|OBC|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|25023|25023|25025|25025|25025|2
5026|25026|25032|25038|25044|25052|25056|25060|25064|25070|25076|25083|25087|25091|25096|2
5102|25106|25110|25114|25118|25122|25128|25133|25137|25143|25147|25151|25157|25161|25165|2
5169|25178|25321|25327|25332|25336|25341|25345|25349|25355|25359|25363|25367|25371|25375|2
5381|25386|25390|25395|25399|25403|25410|25414|25418|25422|
MH|IPC|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|749|749|749|749|749|750|750|750
|750|750|750|750|750|750|750|750|750|750|750|750|751|751|751|751|751|751|751|751|751|751|7
51|751|751|751|751|752|752|752|752|752|752|752|752|752|752|752|752|752|752|753|753|753|753
|753|753|753|753|753|753|753|
MH|OPC|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|55|55|55|55|55|55|55|55|55|55|5
5|55|55|55|55|55|55|55|55|55|55|55|55|55|55|55|55|55|55|55|55|55|55|55|55|55|55|55|55|55|5
5|55|55|56|56|56|56|56|56|56|56|56|56|56|56|56|56|56|56|56|
MH|IBR|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|7127|5155|6202|3545|5408|3979|4
381|9492|3033|4962|4571|4226|3760|5923|3265|6494|3441|3542|3162|4076|4744|2726|4847|4292|5
401|5166|3735|6659|3837|5260|4186|5728|4932|4515|3764|2843|3397|10768|3080|6309|5969|4472|
2780|4492|3540|3664|3800|3002|6258|5567|4044|4059|4548|3713|3265|4159|3630|8235|6934|4298|
MH|OBR|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|82791|57|1410|588|57|639|0|4698
|5068|4992|6495|3292|3292|3352|5061|4808|5205|3931|3298|3349|5064|3439|3356|3292|3343|3349
|5067|3883|3356|4500|3301|3349|5212|3298|3349|3292|7316|116896|5072|3881|3356|3931|3298|33
49|5064|3292|3349|3292|3292|3349|5061|3883|3356|3931|3452|3356|5064|3292|3349|3292|
MH|IPR|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|12|8|6|5|7|5|6|14|5|7|7|5|6|9|5
|8|6|5|5|7|6|5|6|5|6|7|6|8|6|6|6|8|6|7|6|4|5|19|5|8|7|6|4|7|5|6|6|5|7|8|6|6|7|5|5|7|6|9|7|
6|
MH|OPR|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|12|0|1|0|0|0|0|4|0|2|2|0|0|0|0|
1|1|0|0|0|0|0|0|0|0|0|0|0|0|1|0|0|0|0|0|0|1|28|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0
|
MH|IERR|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|
0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|
```

```
MH|NB|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|
0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|
MH|RB|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|374874|374911|374943|374967|3750
10|375038|375073|375113|375140|375160|375181|375211|375243|375289|375316|375350|375373|375
395|375422|375446|375481|375498|375535|375561|375591|375622|375654|375701|375738|375761|37
5794|375833|375863|375902|375935|375954|375974|375999|376027|376075|376115|376147|376168|3
76200|376224|376253|376289|376315|376365|376400|376436|376463|376508|376530|376553|376583|
376614|376668|376714|376749|
MH|RNT|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0
|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|
MH|GNT|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0
|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|
MH|CRC|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0
|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|
MH|FRM|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0
|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|
MH|OR|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|
0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|
MH|UR|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|
0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|
MH|OERR|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|
0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|
MH|COLL|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|
0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|
MH|LCOLL|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0
|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0
|
MH|RST|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0
|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|
MH|DEF|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0
|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|
MH|LCR|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0
|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|
MH|HIQ|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|128|128|128|128|128|128|128|128
|128|128|128|128|128|128|128|128|128|128|128|128|128|128|128|128|128|128|128|128|128|128|1
28|128|128|128|128|128|128|128|128|128|128|128|128|128|128|128|128|128|128|128|128|128|128
|128|128|128|128|128|128|128|
MH|SIQ|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0
|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|
MH|HOQ|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0
|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|
MH|SOQ|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0
|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|
MH|DPC|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0
|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|
hostname#
```

The following is sample output from the **show asdm history** command using the **snapshot** keyword:

```
hostname# show asdm history view 10m snapshot

Available 4 byte Blocks:  [  10s] : 100
Used 4 byte Blocks:  [  10s] : 0
Available 80 byte Blocks:  [  10s] : 100
Used 80 byte Blocks:  [  10s] : 0
Available 256 byte Blocks:  [  10s] : 2100
Used 256 byte Blocks:  [  10s] : 0
Available 1550 byte Blocks:  [  10s] : 7425
Used 1550 byte Blocks:  [  10s] : 1279
Available 2560 byte Blocks:  [  10s] : 40
Used 2560 byte Blocks:  [  10s] : 0
Available 4096 byte Blocks:  [  10s] : 30
Used 4096 byte Blocks:  [  10s] : 0
Available 8192 byte Blocks:  [  10s] : 60
```

```
Used 8192 byte Blocks:  [  10s] : 0
Available 16384 byte Blocks:  [  10s] : 100
Used 16384 byte Blocks:  [  10s] : 0
Available 65536 byte Blocks:  [  10s] : 10
Used 65536 byte Blocks:  [  10s] : 0
CPU Utilization:  [  10s] : 31
Input KByte Count:  [  10s] : 62930
Output KByte Count:  [  10s] : 26620
Input KPacket Count:  [  10s] : 755
Output KPacket Count:  [  10s] : 58
Input Bit Rate:  [  10s] : 24561
Output Bit Rate:  [  10s] : 518897
Input Packet Rate:  [  10s] : 48
Output Packet Rate:  [  10s] : 114
Input Error Packet Count:  [  10s] : 0
No Buffer:  [  10s] : 0
Received Broadcasts:  [  10s] : 377331
Runts:  [  10s] : 0
Giants:  [  10s] : 0
CRC:  [  10s] : 0
Frames:  [  10s] : 0
Overruns:  [  10s] : 0
Underruns:  [  10s] : 0
Output Error Packet Count:  [  10s] : 0
Collisions:  [  10s] : 0
LCOLL:  [  10s] : 0
Reset:  [  10s] : 0
Deferred:  [  10s] : 0
Lost Carrier:  [  10s] : 0
Hardware Input Queue:  [  10s] : 128
Software Input Queue:  [  10s] : 0
Hardware Output Queue:  [  10s] : 0
Software Output Queue:  [  10s] : 0
Drop KPacket Count:  [  10s] : 0
Input KByte Count:  [  10s] : 3672
Output KByte Count:  [  10s] : 4051
Input KPacket Count:  [  10s] : 19
Output KPacket Count:  [  10s] : 20
Input Bit Rate:  [  10s] : 0
Output Bit Rate:  [  10s] : 0
Input Packet Rate:  [  10s] : 0
Output Packet Rate:  [  10s] : 0
Input Error Packet Count:  [  10s] : 0
No Buffer:  [  10s] : 0
Received Broadcasts:  [  10s] : 1458
Runts:  [  10s] : 1
Giants:  [  10s] : 0
CRC:  [  10s] : 0
Frames:  [  10s] : 0
Overruns:  [  10s] : 0
Underruns:  [  10s] : 0
Output Error Packet Count:  [  10s] : 0
Collisions:  [  10s] : 63
LCOLL:  [  10s] : 0
Reset:  [  10s] : 0
Deferred:  [  10s] : 15
Lost Carrier:  [  10s] : 0
Hardware Input Queue:  [  10s] : 128
Software Input Queue:  [  10s] : 0
Hardware Output Queue:  [  10s] : 0
Software Output Queue:  [  10s] : 0
Drop KPacket Count:  [  10s] : 0
Input KByte Count:  [  10s] : 0
Output KByte Count:  [  10s] : 0
```

```
Input KPacket Count:  [  10s] : 0
Output KPacket Count:  [  10s] : 0
Input Bit Rate:  [  10s] : 0
Output Bit Rate:  [  10s] : 0
Input Packet Rate:  [  10s] : 0
Output Packet Rate:  [  10s] : 0
Input Error Packet Count:  [  10s] : 0
No Buffer:  [  10s] : 0
Received Broadcasts:  [  10s] : 0
Runts:  [  10s] : 0
Giants:  [  10s] : 0
CRC:  [  10s] : 0
Frames:  [  10s] : 0
Overruns:  [  10s] : 0
Underruns:  [  10s] : 0
Output Error Packet Count:  [  10s] : 0
Collisions:  [  10s] : 0
LCOLL:  [  10s] : 0
Reset:  [  10s] : 0
Deferred:  [  10s] : 0
Lost Carrier:  [  10s] : 0
Hardware Input Queue:  [  10s] : 128
Software Input Queue:  [  10s] : 0
Hardware Output Queue:  [  10s] : 0
Software Output Queue:  [  10s] : 0
Drop KPacket Count:  [  10s] : 0
Input KByte Count:  [  10s] : 0
Output KByte Count:  [  10s] : 0
Input KPacket Count:  [  10s] : 0
Output KPacket Count:  [  10s] : 0
Input Bit Rate:  [  10s] : 0
Output Bit Rate:  [  10s] : 0
Input Packet Rate:  [  10s] : 0
Output Packet Rate:  [  10s] : 0
Input Error Packet Count:  [  10s] : 0
No Buffer:  [  10s] : 0
Received Broadcasts:  [  10s] : 0
Runts:  [  10s] : 0
Giants:  [  10s] : 0
CRC:  [  10s] : 0
Frames:  [  10s] : 0
Overruns:  [  10s] : 0
Underruns:  [  10s] : 0
Output Error Packet Count:  [  10s] : 0
Collisions:  [  10s] : 0
LCOLL:  [  10s] : 0
Reset:  [  10s] : 0
Deferred:  [  10s] : 0
Lost Carrier:  [  10s] : 0
Hardware Input Queue:  [  10s] : 128
Software Input Queue:  [  10s] : 0
Hardware Output Queue:  [  10s] : 0
Software Output Queue:  [  10s] : 0
Drop KPacket Count:  [  10s] : 0
Available Memory:  [  10s] : 205149944
Used Memory:  [  10s] : 63285512
Xlate Count:  [  10s] : 0
Connection Count:  [  10s] : 0
TCP Connection Count:  [  10s] : 0
UDP Connection Count:  [  10s] : 0
URL Filtering Count:  [  10s] : 0
URL Server Filtering Count:  [  10s] : 0
TCP Fixup Count:  [  10s] : 0
TCP Intercept Count:  [  10s] : 0
```

```
HTTP Fixup Count:  [  10s] : 0
FTP Fixup Count:  [  10s] : 0
AAA Authentication Count:  [  10s] : 0
AAA Authorzation Count:  [  10s] : 0
AAA Accounting Count:  [  10s] : 0
Current Xlates:  [  10s] : 0
Max Xlates:  [  10s] : 0
ISAKMP SAs:  [  10s] : 0
IPsec SAs:  [  10s] : 0
L2TP Sessions:  [  10s] : 0
L2TP Tunnels:  [  10s] : 0
hostname#
```

Related Commands

Command	Description
asdm history enable	Enables ASDM history tracking.

show asdm image

To the current ASDM software image file, use the show **asdm image** command in privileged EXEC mode.

show asdm image

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was changed from the **show pdm image** command to the **show asdm image** command.

Examples

The following is sample output from the **show asdm image** command:

```
hostname# show asdm image

Device Manager image file, flash:/ASDM
```

Related Commands

Command	Description
asdm image	Specifies the current ASDM image file.

show asdm log_sessions

To display a list of active ASDM logging sessions and their associated session IDs, use the **show asdm log_sessions** command in privileged EXEC mode.

show asdm log_sessions

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Each active ASDM session has one or more associated ASDM logging sessions. ASDM uses the logging session to retrieve syslog messages from the ASA. Each ASDM logging session is assigned a unique session ID. You can use this session ID with the **asdm disconnect log_session** command to terminate the specified session.

Note Because each ASDM session has at least one ASDM logging session, the output for the **show asdm sessions** and **show asdm log_sessions** may appear to be the same.

Examples

The following is sample output from the **show asdm log_sessions** command:

```
hostname# show asdm log_sessions

0 192.168.1.1
1 192.168.1.2
```

Related Commands

Command	Description
asdm disconnect log_session	Terminates an active ASDM logging session.

show asdm sessions

To display a list of active ASDM sessions and their associated session IDs, use the **show asdm sessions** command in privileged EXEC mode.

show asdm sessions

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was changed from the **show pdm sessions** command to the **show asdm sessions** command.

Usage Guidelines

Each active ASDM session is assigned a unique session ID. You can use this session ID with the **asdm disconnect** command to terminate the specified session.

Examples

The following is sample output from the **show asdm sessions** command:

```
hostname# show asdm sessions

0 192.168.1.1
1 192.168.1.2
```

Related Commands

Command	Description
asdm disconnect	Terminates an active ASDM session.

CHAPTER 45

show asp cluster counter through show asp table vpn-context Commands

show asp cluster counter

To debug global or context-specific information in a clustering environment, use the **show asp cluster counter** command in privileged EXEC mode.

show asp cluster counter

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

The **show asp cluster counter** command shows the global and context-specific DP counters, which might help you troubleshoot a problem. This information is used for debugging purposes only, and the information output is subject to change. Consult the Cisco TAC to help you debug your system with this command.

Examples

The following is sample output from the **show asp cluster counter** command:

```
hostname# show asp cluster counter

Global dp-counters:


Context specific dp-counters:

MCAST_FP_TO_SP                  361136
MCAST_SP_TOTAL                  361136
MCAST_SP_PKTS                   143327
MCAST_SP_PKTS_TO_CP             143327
MCAST_FP_CHK_FAIL_NO_HANDLE     217809
MCAST_FP_CHK_FAIL_NO_ACCEPT_IFC 81192
MCAST_FP_CHK_FAIL_NO_FP_FWD     62135
```

Related Commands

Command	Description
show asp drop	Shows the accelerated security path counters for dropped packets.

show asp drop

To debug the accelerated security path dropped packets or connections, use the **show asp drop** command in privileged EXEC mode.

show asp drop [**flow** [*flow_drop_reason*] | **frame** [*frame_drop_reason*]]

Syntax Description

flow [*flow_drop_reason*]	(Optional) Shows the dropped flows (connections). You can specify a particular reason by using the *flow_drop_reason* argument. Valid values for the *flow_drop_reason* argument are listed in the "Usage Guidelines" section.
frame [*frame_drop_reason*]	(Optional) Shows the dropped packets. You can specify a particular reason by using the *frame_drop_reason* argument. Valid values for the *frame_drop_reason* argument are listed in the "Usage Guidelines" section.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.
7.0(8)/7.2(4)/8.0(4)	Output includes a timestamp indicating when the counters were last cleared (see the **clear asp drop** command). It also displays the drop reason keywords next to the description, so you can easily use the **capture asp-drop** command with the associated keyword.

Usage Guidelines

The **show asp drop** command shows the packets or connections dropped by the accelerated security path, which might help you troubleshoot a problem. See the CLI configuration guide for more information about the accelerated security path. This information is used for debugging purposes only, and the information output is subject to change. Consult Cisco TAC to help you debug your system with this command.

The following sections include each drop reason name and description, including recommendations:

- Frame Drop Reasons, page 45-5
- Flow Drop Reasons, page 45-60

Frame Drop Reasons

```
-----------------------------------------------------------------
Name: natt-keepalive
NAT-T keepalive message:
    This counter will increment when the appliance receives an IPSec NAT-T keepalive
message.  NAT-T keepalive messages are sent from the IPSec peer to the appliance to keep
NAT/PAT flow information current in network devices between the NAT-T IPSec peer and the
appliance.

 Recommendation:
    If you have configured IPSec NAT-T on your appliance, this indication is normal and
doesn't indicate a problem.  If NAT-T is not configured on your appliance, analyze your
network traffic to determine the source of the NAT-T traffic.

 Syslogs:
    None


-----------------------------------------------------------------
Name: ipsecudp-keepalive
IPSEC/UDP keepalive message:
    This counter will increment when the appliance receives an IPSec over UDP keepalive
message. IPSec over UDP keepalive messages are sent from the IPSec peer to the appliance
to keep NAT/PAT flow information current in network devices between the IPSec over UDP
peer and the appliance. Note - These are not industry standard NAT-T keepalive messages
which are also carried over UDP and addressed to UDP port 4500.
 Recommendation:
    If you have configured IPSec over UDP on your appliance, this indication is normal and
doesn't indicate a problem.  If IPSec over UDP is not configured on your appliance,
analyze your network traffic to determine the source of the IPSec over UDP traffic.

 Syslogs:
    None


-----------------------------------------------------------------
Name: bad-ipsec-prot
IPSec not AH or ESP:
    This counter will increment when the appliance receives a packet on an IPSec
connection which is not an AH or ESP protocol. This is not a normal condition.

 Recommendation:
    If you are receiving many IPSec not AH or ESP indications on your appliance, analyze
your network traffic to determine the source of the traffic.

 Syslogs:
    402115


-----------------------------------------------------------------
Name: ipsec-ipv6
IPSec via IPV6:
    This counter will increment when the appliance receives an IPSec ESP packet, IPSec
NAT-T ESP packet or an IPSec over UDP ESP packet encapsulated in an IP version 6 header.
The appliance does not currently support any IPSec sessions encapsulated in IP version 6.

 Recommendation:
    None

 Syslogs:
    None
```

```
-------------------------------------------------------------
Name: bad-ipsec-natt
BAD IPSec NATT packet:
    This counter will increment when the appliance receives a packet on an IPSec
connection which has negotiated NAT-T but the packet is not addressed to the NAT-T UDP
destination port of 4500 or had an invalid payload length.

 Recommendation:
    Analyze your network traffic to determine the source of the NAT-T traffic.

 Syslogs:
    None


-------------------------------------------------------------
Name: bad-ipsec-udp
BAD IPSec UDP packet:
    This counter will increment when the appliance receives a packet on an IPSec
connection which has negotiated IPSec over UDP but the packet has an invalid payload
length.

 Recommendation:
    Analyze your network traffic to determine the source of the NAT-T traffic.

 Syslogs:
    None


-------------------------------------------------------------
Name: inspect-srtp-encrypt-failed
Inspect SRTP Encryption failed:
    This counter will increment when SRTP encryption fails.

Recommendation:
    If error persists even after a reboot please call TAC to see why SRTP encryption is
failing in the hardware crypto accelerator.

Syslogs:
    337001.


-------------------------------------------------------------
Name: inspect-srtp-decrypt-failed
Inspect SRTP Decryption failed:
    This counter will increment when SRTP decryption fails.

Recommendation:
    If error persists even after a reboot please call TAC to see why SRTP decryption is
failing in the hardware crypto accelerator.

Syslogs:
    337002.


-------------------------------------------------------------
Name: inspect-srtp-validate-authtag-failed
Inspect SRTP Authentication tag validation failed:
    This counter will increment when SRTP authentication tag validation fails.

Recommendation:
    No action is required. If error persists SRTP packets arriving at the firewall are
being tampered with and the administrator has to identify the cause.

Syslogs:
```

```
    337003.


----------------------------------------------------------------
Name: inspect-srtp-generate-authtag-failed
Inspect SRTP Authentication tag generation failed:
    This counter will increment when SRTP authentication tag generation fails.

Recommendation:
    No action is required.

Syslogs:
    337004.


----------------------------------------------------------------
Name: inspect-srtp-no-output-flow
Inspect SRTP failed to find output flow:
    This counter will increment when the flow from the Phone proxy could not be created or
if the flow has been torn down

Recommendation:
    No action is required. The flow creation could have failed because of low memory
conditions.

Syslogs:
    None.


----------------------------------------------------------------
Name: inspect-srtp-setup-srtp-failed
Inspect SRTP setup in CTM failed:
    This counter will increment when SRTP setup in the CTM fails.

Recommendation:
    No action is required. If error persists call TAC to see why the CTM calls are
failing.

Syslogs:
    None.


----------------------------------------------------------------
Name: inspect-srtp-one-part-no-key
Inspect SRTP failed to find keys for both parties:
    This counter will increment when Inspect SRTP finds only one party's keys populated in
the media session.

Recommendation:
    No action is required. This counter could increment in the beginning phase of the call
but eventually when the call signaling exchange completes both parties should know their
respective keys.

Syslogs:
    None.


----------------------------------------------------------------
Name: inspect-srtp-no-media-session
Inspect SRTP Media session lookup failed:
    This counter will increment when SRTP media session lookup fails.

Recommendation:
```

```
    No action is required. The media session is created by Inspect SIP or Skinny when the
IP address is parsed as part of the signaling exchange. Debug the signaling messages to
figure out the cause.

Syslogs:
    None.


----------------------------------------------------------------
Name: inspect-srtp-no-remote-phone-proxy-ip
Inspect SRTP Remote Phone Proxy IP not populated:
    This counter will increment when remote phone proxy IP is not populated

Recommendation:
    No action is required. The remote phone proxy IP address is populated from the
signaling exchange. If error persists debug the signaling messages to figure out if ASA is
seeing all the signaling messages.

Syslogs:
    None.


----------------------------------------------------------------
Name: inspect-srtp-client-port-not-present
Inspect SRTP client port wildcarded in media session:
    This counter will increment when client port is not populated in media session

Recommendation:
    No action is required. The client port is populated dynamically when the media stream
comes in from the client. Capture the media packets to see if the client is sending media
packets.

Syslogs:
    None.


----------------------------------------------------------------
Name: ipsec-need-sa
IPSec SA not negotiated yet:
    This counter will increment when the appliance receives a packet which requires
encryption but has no established IPSec security association. This is generally a normal
condition for LAN-to-LAN IPSec configurations. This indication will cause the appliance to
begin ISAKMP negotiations with the destination peer.

 Recommendation:
    If you have configured IPSec LAN-to-LAN on your appliance, this indication is normal
and doesn't indicate a problem.  However, if this counter increments rapidly it may
indicate a crypto configuration error or network error preventing the ISAKMP negotiation
from completing. Verify that you can communicate with the destination peer and verify your
crypto configuration via the 'show running-config' command.

 Syslogs:
    None


----------------------------------------------------------------
Name: ipsec-spoof
IPSec spoof detected:
    This counter will increment when the appliance receives a packet which should have
been encrypted but was not. The packet matched the inner header security policy check of a
configured and established IPSec connection on the appliance but was received unencrypted.
This is a security issue.

 Recommendation:
```

```
    Analyze your network traffic to determine the source of the spoofed IPSec traffic.

 Syslogs:
    402117


----------------------------------------------------------------
Name: ipsec-clearpkt-notun
IPSec Clear Pkt w/no tunnel:
    This counter will increment when the appliance receives a packet which should have
been encrypted but was not.  The packet matched the inner header security policy check of
a configured and established IPSec connection on the appliance but was received
unencrypted. This is a security issue.

 Recommendation:
    Analyze your network traffic to determine the source of the spoofed IPSec traffic.

 Syslogs:
    402117


----------------------------------------------------------------
Name: ipsec-tun-down
IPSec tunnel is down:
    This counter will increment when the appliance receives a packet associated with an
IPSec connection which is in the process of being deleted.

 Recommendation:
    This is a normal condition when the IPSec tunnel is torn down for any reason.

 Syslogs:
    None


----------------------------------------------------------------
Name: mp-svc-delete-in-progress
SVC Module received data while connection was being deleted:
    This counter will increment when the security appliance receives a packet associated
with an SVC connection that is in the process of being deleted.

Recommendation:
    This is a normal condition when the SVC connection is torn down for any reason. If
this error occurs repeatedly or in large numbers, it could indicate that clients are
having network connectivity issues.

Syslogs:
    None.


----------------------------------------------------------------
Name: mp-svc-bad-framing
SVC Module received badly framed data:
    This counter will increment when the security appliance receives a packet from an SVC
or the control software that it is unable to decode.

Recommendation:
    This indicates that a software error should be reported to the Cisco TAC. The SVC or
security appliance could be at fault.

Syslogs:
    722037 (Only for SVC received data).


----------------------------------------------------------------
```

```
Name: mp-svc-bad-length
SVC Module received bad data length:
    This counter will increment when the security appliance receives a packet from an SVC
or the control software where the calculated and specified lengths do not match.

Recommendation:
    This indicates that a software error should be reported to the Cisco TAC. The SVC or
security appliance could be at fault.

Syslogs:
    722037 (Only for SVC received data).


----------------------------------------------------------------
Name: mp-svc-unknown-type
SVC Module received unknown data frame:
    This counter will increment when the security appliance receives a packet from an SVC
where the data type is unknown.

Recommendation:
    Validate that the SVC being used by the client is compatible with the version of
security appliance software.

Syslogs:
   None.


----------------------------------------------------------------
Name: mp-svc-addr-renew-response
SVC Module received address renew response data frame:
    This counter will increment when the security appliance receives an Address Renew
Response message from an SVC. The SVC should not be sending this message.

Recommendation:
    This indicates that an SVC software error should be reported to the Cisco TAC.

Syslogs:
   None.


----------------------------------------------------------------
Name: mp-svc-no-prepend
SVC Module does not have enough space to insert header:
    This counter will increment when there is not enough space before the packet data to
prepend a MAC header in order to put the packet onto the network.

Recommendation:
    This indicates that a software error should be reported to the Cisco TAC.

Syslogs:
   None.


----------------------------------------------------------------
Name: mp-svc-no-channel
SVC Module does not have a channel for reinjection:
    This counter will increment when the interface that the encrypted data was received
upon cannot be found in order to inject the decrypted data.

Recommendation:
    If an interface is shut down during a connection, this could happen; re-enable/check
the interface. Otherwise, this indicates that a software error should be reported to the
Cisco TAC.
```

```
Syslogs:
   None.


----------------------------------------------------------------
Name: mp-svc-no-session
SVC Module does not have a session:
    This counter will increment when the security appliance cannot determine the SVC
session that this data should be transmitted over.

Recommendation:
    This indicates that a software error should be reported to the Cisco TAC.

Syslogs:
   None.


----------------------------------------------------------------
Name: mp-svc-session-lock-failure
SVC Module failed to acquire the session lock:
    This counter will increment when the security appliance cannot grab the lock for the
SVC session that this data should be transmitted over.

Recommendation:
    This condition should never be encountered during normal operation and     may
indicate a software problem with the appliance.  Contact the Cisco     Technical
Assistance Center (TAC) if this error occurs.

Syslogs:
    None.


----------------------------------------------------------------
Name: mp-svc-decompres-error
SVC Module decompression error:
    This counter will increment when the security appliance encounters an error during
decompression of data from an SVC.

Recommendation:
    This indicates that a software error should be reported to the Cisco TAC. The SVC or
security appliance could be at fault.

Syslogs:
   722037.


----------------------------------------------------------------
Name: mp-svc-compress-error
SVC Module compression error:
    This counter will increment when the security appliance encounters an error during
compression of data to an SVC.

Recommendation:
    This indicates that a software error should be reported to the Cisco TAC. The SVC or
security appliance could be at fault.

Syslogs:
   722037.


----------------------------------------------------------------
Name: mp-svc-no-mac
SVC Module unable to find L2 data for frame:
```

```
    This counter will increment when the security appliance is unable to find an L2 MAC
header for data received from an SVC.

Recommendation:
    This indicates that a software error should be reported to the Cisco TAC.

Syslogs:
   None.


----------------------------------------------------------------
Name: mp-svc-invalid-mac
SVC Module found invalid L2 data in the frame:
    This counter will increment when the security appliance is finds an invalid L2 MAC
header attached to data received from an SVC.

Recommendation:
    This indicates that a software error should be reported to the Cisco TAC.

Syslogs:
   None.


----------------------------------------------------------------
Name: mp-svc-invalid-mac-len
SVC Module found invalid L2 data length in the frame:
    This counter will increment when the security appliance is finds an invalid L2 MAC
length attached to data received from an SVC.

Recommendation:
    This indicates that a software error should be reported to the Cisco TAC.

Syslogs:
   None.


----------------------------------------------------------------
Name: mp-svc-flow-control
SVC Session is in flow control:
    This counter will increment when the security appliance needs to drop data because an
SVC is temporarily not accepting any more data.

Recommendation:
    This indicates that the client is unable to accept more data. The client should reduce
the amount of traffic it is attempting to receive.

Syslogs:
   None.


----------------------------------------------------------------
Name: mp-svc-no-fragment
SVC Module unable to fragment packet:
    This counter is incremented when a packet to be sent to the SVC is not permitted to be
fragmented or when there are not enough data buffers to fragment the packet.

Recommendation:
    Increase the MTU of the SVC to reduce fragmentation. Avoid using applications that do
not permit fragmentation. Decrease the load on the device to increase available data
buffers.

Syslogs:
    None.
```

```
------------------------------------------------------------------
Name: vpn-handle-error
VPN Handle Error:
    This counter is incremented when the appliances is unable to create a VPN handle
because the VPN handle already exists.

 Recommendation:
    It is possible to see this counter increment as part of normal operation However, if
the counter is rapidly incrementing and there is a major malfunction of vpn-based
applications, then this may be caused by a software defect. Contact the Cisco TAC to
investigate the issue further.

 Syslogs:
    None.


------------------------------------------------------------------
Name: ipsec-lock-error
IPSec locking error:
    This counter is incremented when an IPSec operation is attempted but fails due to an
internal locking error.

Recommendation:
    This condition should never be encountered during normal operation and may indicate a
software problem with the appliance. Contact the Cisco Technical Assistance Center (TAC)
if this error occurs.

Syslogs:
    None.


------------------------------------------------------------------
Name: vpn-handle-mismatch
VPN Handle Mismatch:
    This counter is incremented when the appliance wants to forward a block and the flow
referred to by the VPN Handle is different than the flow associated with the block.

 Recommendation:
    This is not a normal occurrence. Please perform a "show console-output" and forward
that output to CISCO TAC for further analysis.

 Syslogs:
    None.


------------------------------------------------------------------
Name: vpn-reclassify-failed
VPN Reclassify Failed:
    This counter is incremented when a packet for a VPN flow is dropped due to the flow
failing to be reclassified after a VPN state change.

 Recommendation:
    This counter is incremented when a packet for a VPN flow arrives that requires
reclassification due to VPN CLI or Tunnel state changes. If the flow no longer matches the
existing policies, then the flow is freed and the packet dropped.

 Syslogs:
    No new syslogs accompany this event.


------------------------------------------------------------------
Name: punt-rate-limit
Punt rate limit exceeded:
```

```
    This counter will increment when the appliance attempts to forward a layer-2 packet to
a rate-limited control point service routine and the rate limit (per/second) is now being
exceeded. Currently, the only layer-2 packets destined for a control point service routine
which are rate limited are ARP packets. The ARP packet rate limit is 500 ARPs per second
per interface.

Recommendation:
    Analyze your network traffic to determine the reason behind the high rate of ARP
packets.

 Syslogs:
    322002, 322003


----------------------------------------------------------------
Name: punt-no-mem
Punt no memory:
    This counter is incremented and the packet is dropped when there is no memory to
create data structure for punting a packet to Control Point.

Recommendation:
    No action needs to be taken if this condition is transient. If this condition persists
due to low memory, then system upgrade might be necessary.

Syslogs:
    None


----------------------------------------------------------------
Name: punt-queue-limit
Punt queue limit exceeded:
    This counter is incremented and the packet is dropped when punt queue limit is
exceeded, an indication that a bottle-neck is forming at Control Point.

Recommendation:
    No action needs to be taken.  This is a design limitation.

Syslogs:
    None


----------------------------------------------------------------
Name: flow-being-freed
Flow is being freed:
    This counter is incremented when the flow is being freed and all packets queued for
inspection are dropped.

Recommendation:
    No action needs to be taken.

Syslogs:
    None


----------------------------------------------------------------
Name: invalid-encap
Invalid Encapsulation:
    This counter is incremented when the security appliance receives a frame belonging to
an unsupported link-level protocol or if the L3type specified in the frame is not
supported by the appliance. The packet is dropped.

Recommendation:
    Verify that directly connected hosts have proper link-level protocol settings.
```

```
Syslogs:
    None.


----------------------------------------------------------------
Name: invalid-ip-header
Invalid IP header:
    This counter is incremented and the packet is dropped when the appliance receives an
IP packet whose computed checksum of the IP header does not match the recorded checksum in
the header.

Recommendation:
    The packet corruption may be caused by a bad cable or noise on the line. It may also
be that a peer is sending corrupted packets and an attack is in progress. Please use the
packet capture feature to learn more about the origin of the packet.

Syslogs:
    None


----------------------------------------------------------------
Name: unsupported-ip-version
Unsupported IP version:
    This counter is incremented when the security appliance receives an IP packet that has
an unsupported version in version field of IP header. Specifically, if the packet does not
belong to version 4 or version 6. The packet is dropped.

Recommendation:
    Verify that other devices on connected network are configured to send IP packets
belonging to versions 4 or 6 only.

Syslogs:
    None.


----------------------------------------------------------------
Name: invalid-ip-length
Invalid IP Length:
    This counter is incremented when the security appliance receives an IPv4 or IPv6
packet in which the header length or total length fields in IP header are not valid or do
not conform to the received packet length.

Recommendation:
    None.

Syslogs:
    None.


----------------------------------------------------------------
Name: invalid-ethertype
Invalid Ethertype:
    This counter is incremented when the fragmentation module on the security appliance
receives or tries to send a fragmented packet that does not belong IP version 4 or version
6. The packet is dropped.

Recommendation:
    Verify mtu of device and other devices on connected network to determine why the
device is processing such fragments.

Syslogs:
    None.
```

```
------------------------------------------------------------------
Name: invalid-tcp-hdr-length
Invalid TCP Length:
    This counter is incremented when the security appliance receives a TCP packet whose
size is smaller than minimum-allowed header length or does not conform to the received
packet length.

Recommendation:
    The invalid packet could be a bogus packet being sent by an attacker.
Investigate the traffic from source in the following syslog.

Syslogs:
    500003.


------------------------------------------------------------------
Name: invalid-udp-length
Invalid UDP Length:
    This counter is incremented when the security appliance receives a UDP packet whose
size as calculated from the fields in header is different from the measured size of packet
as received from the network.

Recommendation:
    The invalid packet could be a bogus packet being sent by an attacker.

Syslogs:
    None.


------------------------------------------------------------------
Name: no-adjacency
No valid adjacency:
    This counter is incremented when the security appliance has tried to obtian an
adjacency and could not obtain mac-address for next hop. The packet is dropped.

Recommendation:
    Configure a capture for this drop reason and check if a host with specified
destination address exists on connected network or is routable from the device.

Syslogs:
   None.


------------------------------------------------------------------
Name: unexpected-packet
Unexpected packet:
    This counter is incremented when the appliance in transparent mode receives a non-IP
packet, destined to its MAC address, but there is no corresponding service running on the
appliance to process the packet.

Recommendation:
    Verify if the appliance is under attack. If there are no suspicious packets, or the
device is not in transparent mode, this counter is most likely being incremented due to a
software error. Attempt to capture the traffic that is causing the counter to increment
and contact the Cisco TAC.

Syslogs:
    None


------------------------------------------------------------------
Name: no-route
No route to host:
```

```
    This counter is incremented when the security appliance tries to send a packet out of
an interface and does not find a route for it in routing table.

Recommendation:
    Verify that a route exists for the destination address obtained from the generated
syslog.

Syslogs:
   110002, 110003.


----------------------------------------------------------------
Name: rpf-violated
Reverse-path verify failed:
    This counter is incremented when ip-verify is configured on an interface and the
security appliance receives a packet for which the route lookup of source-ip did not yield
the same interface as the one on which the packet was received.

Recommendation:
    Trace the source of traffic based on source-ip printed in syslog below and investigate
why it is sending spoofed traffic.

Syslogs:
    106021.


----------------------------------------------------------------
Name: acl-drop
Flow is denied by configured rule:
    This counter is incremented when a drop rule is hit by the packet and gets dropped.
This rule could be a default rule created when the box comes up, when various features are
turned on or off, when an acl is applied to interface or any other feature etc. Apart from
default rule drops, a packet could be dropped because of:
     1) ACL configured on an interface
     2) ACL configured for AAA and AAA denied the user
     3) Thru-box traffic arriving at management-only ifc
     4) Unencrypted traffic arriving on a ipsec-enabled interface

Recommendation:
    Note if one of ACLs listed below are fired.

Syslogs:
    106023, 106100, 106004


----------------------------------------------------------------
Name: unable-to-create-flow
Flow denied due to resource limitation:
    This counter is incremented and the packet is dropped when flow creation fails due to
a system resource limitation.  The resource limit may be either:
       1) system memory
       2) packet block extension memory
       3) system connection limit
    Causes 1 and 2 will occur simultaneously with flow drop reason "No memory to complete
flow".

Recommendation:
    - Observe if free system memory is low.
    - Observe if flow drop reason "No memory to complete flow" occurs.
    - Observe if connection count reaches the system connection limit with the command
"show resource usage".

Syslogs:
    None
```

```
----------------------------------------------------------------
Name: unable-to-add-flow
Flow hash full:
    This counter is incremented when a newly created flow is inserted into flow hash table
and the insertion failed because the hash table was full. The flow and the packet are
dropped. This is different from counter that gets incremented when maximum connection
limit is reached.

Recommendation:
    This message signifies lack of resources on the device to support an operation that
should have been successful. Please check if the connections in the 'show conn' output
have exceeded their configured idle timeout values. If so, contact the Cisco Technical
Assistance Center (TAC).

Syslogs:
    None.


----------------------------------------------------------------
Name: np-sp-invalid-spi
Invalid SPI:
    This counter will increment when the appliance receives an IPSec ESP packet addressed
to the appliance which specifies a SPI (security parameter index) not currently known by
the appliance.

 Recommendation:
    Occasional invalid SPI indications are common, especially during rekey processing.
Many invalid SPI indications may suggest a problem or DoS attack. If you are experiencing
a high rate of invalid SPI indications, analyze your network traffic to determine the
source of the ESP traffic.

 Syslogs:
    402114


----------------------------------------------------------------
Name: unsupport-ipv6-hdr
Unsupported IPv6 header:
    This counter is incremented and the packet is dropped if an IPv6 packet is received
with an unsupported IPv6 extension header. The supported IPv6 extension headers are: TCP,
UDP, ICMPv6, ESP, AH, Hop Options, Destination Options, and Fragment. The IPv6 routing
extension header is not supported, and any extension header not listed above is not
supported.  IPv6 ESP and AH headers are supported only if the packet is through-the-box.
To-the-box IPv6 ESP and AH packets are not supported and will be dropped.

Recommendation:
    This error may be due to a misconfigured host. If this error occurs repeatedly or in
large numbers, it could also indicate spurious or malicious activity such as an attempted
DoS attack.

Syslogs:
    None.


----------------------------------------------------------------
Name: tcp-not-syn
First TCP packet not SYN:
    Received a non SYN packet as the first packet of a non intercepted and non nailed
connection.

Recommendation:
```

```
    Under normal conditions, this may be seen when the appliance has already closed a
connection, and the client or server still believe the connection is open, and continue to
transmit data.  Some examples where this may occur is just after a 'clear local-host' or
'clear xlate' is issued. Also, if connections have not been recently removed, and the
counter is incrementing rapidly, the appliance may be under attack. Capture a sniffer
trace to help isolate the cause.

Syslogs:
    6106015


----------------------------------------------------------------
Name: bad-tcp-cksum
Bad TCP checksum:
    This counter is incremented and the packet is dropped when the appliance receives a
TCP packet whose computed TCP checksum does not match the recorded checksum in TCP header.

Recommendation:
    The packet corruption may be caused by a bad cable or noise on the line. It may also
be that a TCP endpoint is sending corrupted packets and an attack is in progress. Please
use the packet capture feature to learn more about the origin of the packet. To allow
packets with incorrect TCP checksum disable checksum-verification feature under tcp-map.

Syslogs:
    None


----------------------------------------------------------------
Name: bad-tcp-flags
Bad TCP flags:
    This counter is incremented and the packet is dropped when the appliance receives a
TCP packet with invalid TCP flags in TCP header. Example a packet with SYN and FIN TCP
flags set will be dropped.

Recommendations:
    The packet corruption may be caused by a bad cable or noise on the line. It may also
be that a TCP endpoint is sending corrupted packets and an attack is in progress. Please
use the packet capture feature to learn more about the origin of the packet.

Syslogs:
    None


----------------------------------------------------------------
Name: tcp-reserved-set
TCP reserved flags set:
    This counter is incremented and the packet is dropped when the appliance receives a
TCP packet with reserved flags set in TCP header.

Recommendations:
    The packet corruption may be caused by a bad cable or noise on the line. It may also
be that a TCP endpoint is sending corrupted packets and an attack is in progress. Please
use the packet capture feature to learn more about the origin of the packet. To allow such
TCP packets or clear reserved flags and then pass the packet use reserved-bits
configuration under tcp-map.

Syslogs:
    None


----------------------------------------------------------------
Name: tcp-bad-option-list
TCP option list invalid:
```

```
    This counter is incremented and the packet is dropped when the appliance receives a
TCP packet with a non-standard TCP header option.

Recommendations:
    To allow such TCP packets or clear non-standard TCP header options and then allow the
packet, use tcp-options configuration under tcp-map.

Syslogs:
    None


----------------------------------------------------------------
Name: tcp-mss-exceeded
TCP data exceeded MSS:
    This counter is incremented and the packet is dropped when the appliance receives a
TCP packet with data length greater than the MSS advertized by peer TCP endpoint.

Recommendations:
    To allow such TCP packets use exceed-mss configuration under tcp-map

Syslogs:
    4419001


----------------------------------------------------------------
Name: tcp-synack-data
TCP SYNACK with data:
    This counter is incremented and the packet is dropped when the appliance receives a
TCP SYN-ACK packet with data.

Recommendations:
    The packet corruption may be caused by a bad cable or noise on the line. It may also
be that a TCP endpoint is sending corrupted packets and an attack is in progress. Please
use the packet capture feature to learn more about the origin of the packet.

Syslogs:
    None


----------------------------------------------------------------
Name: tcp-syn-data
TCP SYN with data:
    This counter is incremented and the packet is dropped when the appliance receives a
TCP SYN packet with data.

Recommendations:
    To allow such TCP packets use syn-data configuration under tcp-map.

Syslogs:
    None


----------------------------------------------------------------
Name: tcp-dual-open
TCP Dual open denied:
    This counter is incremented and the packet is dropped when the appliance recevies a
TCP SYN packet from the server, when an embryonic TCP connection is already open.

Recommendations:
    None

Syslogs:
    None
```

```
------------------------------------------------------------------
Name: tcp-data-past-fin
TCP data send after FIN:
    This counter is incremented and the packet is dropped when the appliance recevies new
TCP data packet from an endpoint which had sent a FIN to close the connection.

Recommendations:
    None

Syslogs:
    None


------------------------------------------------------------------
Name: tcp-3whs-failed
TCP failed 3 way handshake:
    This counter is incremented and the packet is dropped when appliance receives an
invalid TCP packet during three-way-handshake. Example SYN-ACK from client will be dropped
for this reason.

Recommendations:
    None

Syslogs:
    None


------------------------------------------------------------------
Name: tcp-rstfin-ooo
TCP RST/FIN out of order:
    This counter is incremented and the packet is dropped when appliance receives a RST or
a FIN packet with incorrect TCP sequence number.

Recommendations:
    None

Syslogs:
    None


------------------------------------------------------------------
Name: tcp-seq-syn-diff
TCP SEQ in SYN/SYNACK invalid:
    This counter is incremented and the packet is dropped when appliance receives a SYN or
SYN-ACK packet during three-way-handshake with incorrect TCP sequence number.

Recommendations:
    None

Syslogs:
    None


------------------------------------------------------------------
Name: tcp-ack-syn-diff
TCP ACK in SYNACK invalid:
    This counter is incremented and the packet is dropped when appliance receives a
SYN-ACK packet during three-way-handshake with incorrect TCP acknowledgement number.

Recommendations:
    None

Syslogs:
```

```
    None


------------------------------------------------------------------
Name: tcp-syn-ooo
TCP SYN on established conn:
    This counter is incremented and the packet is dropped when appliance receives a TCP
SYN packet on an established TCP connection.

Recommendations:
    None

Syslogs:
    None


------------------------------------------------------------------
Name: tcp-synack-ooo
TCP SYNACK on established conn:
    This counter is incremented and the packet is dropped when appliance receives a TCP
SYN-ACK packet on an established TCP connection.

Recommendations:
    None

Syslogs:
    None


------------------------------------------------------------------
Name: tcp-seq-past-win
TCP packet SEQ past window:
    This counter is incremented and the packet is dropped when appliance receives a TCP
data packet with sequence number beyond the window allowed by the peer TCP endpoint.

Recommendations:
    None

Syslogs:
    None


------------------------------------------------------------------
Name: tcp-invalid-ack
TCP invalid ACK:
    This counter is incremented and the packet is dropped when appliance receives a TCP
packet with acknowledgement number greater than data sent by peer TCP endpoint.

Recommendations:
    None

Syslogs:
    None


------------------------------------------------------------------
Name: tcp-fo-drop
TCP replicated flow pak drop:
    This counter is incremented and the packet is dropped when appliance receives a TCP
packet with control flag like SYN, FIN or RST on an established connection just after the
appliance has taken over as active unit.

Recommendations:
    None
```

```
Syslogs:
    None


----------------------------------------------------------------
Name: tcp-discarded-ooo
TCP ACK in 3 way handshake invalid:
    This counter is incremented and the packet is dropped when appliance receives a TCP
ACK packet from client during three-way-handshake and the sequence number is not next
expected sequence number.

Recommendations:
    None

Syslogs:
    None


----------------------------------------------------------------
Name: tcp-buffer-full
TCP Out-of-Order packet buffer full:
    This counter is incremented and the packet is dropped when appliance receives an
out-of-order TCP packet on a connection and there is no buffer space to store this packet.
Typically TCP packets are put into order on connections that are inspected by the
appliance or when packets are sent to SSM for inspection. There is a default queue size
and when packets in excess of this default queue size are received they will be dropped.

Recommendations:
    On ASA platforms the queue size could be increased using queue-limit configuration
under tcp-map.

Syslogs:
    None


----------------------------------------------------------------
Name: tcp-global-buffer-full
TCP global Out-of-Order packet buffer full:
    This counter is incremented and the packet is dropped when the security appliance
receives an out-of-order TCP packet on a connection and there are no more global buffers
available. Typically TCP packets are put into order on connections that are inspected by
the security appliance or when packets are sent to the SSM for inspection. When the global
Out-of-Order buffer queue is full, the packet will be dropped and this counter will
increment.

Recommendations:
    This is a temporary condition when all global buffers are used. If this counter is
constantly incrementing, then please check your network for large amounts of Out-of-Order
traffic, which could be caused by traffic of the same flow taking different routes through
the network.

Syslogs:
    None


----------------------------------------------------------------
Name: tcp-buffer-timeout
TCP Out-of-Order packet buffer timeout:
    This counter is incremented and the packet is dropped when a queued out of order TCP
packet has been held in the buffer for too long.Typically, TCP packets are put into order
on connections that are inspected by the security appliance or when packets are sent to
the SSM for inspection. When the next expected TCP packet does not arrive within a certain
period, the queued out of order packet is dropped.
```

```
Recommendations:
    The next expected TCP packet may not arrive due to congestion in the network which is
normal in a busy network. The TCP retransmission mechanism in the end host will retransmit
the packet and the session will continue.

Syslogs:
    None


----------------------------------------------------------------
Name: tcp-rst-syn-in-win
TCP RST/SYN in window:
    This counter is incremented and the packet is dropped when appliance receives a TCP
SYN or TCP RST packet on an established connection with sequence number within window but
not next expected sequence number.

Recommendations:
    None

Syslogs:
    None


----------------------------------------------------------------
Name: tcp-acked
TCP DUP and has been ACKed:
    This counter is incremented and the packet is dropped when appliance receives a
retransmitted data packet and the data has been acknowledged by the peer TCP endpoint.

Recommendations:
    None

Syslogs:
    None


----------------------------------------------------------------
Name: tcp-dup-in-queue
TCP dup of packet in Out-of-Order queue:
    This counter is incremented and the packet is dropped when appliance receives a
retransmitted data packet that is already in our out of order packet queue.

Recommendations:
    None

Syslogs:
    None


----------------------------------------------------------------
Name: tcp-paws-fail
TCP packet failed PAWS test:
    This counter is incremented and the packet is dropped when TCP packet with timestamp
header option fails the PAWS (Protect Against Wrapped Sequences) test.

Recommendations:
    To allow such connections to proceed, use tcp-options configuration under tcp-map to
clear timestamp option.

Syslogs:
    None
```

```
------------------------------------------------------------------
Name: tcp-conn-limit
TCP connection limit reached:
    This reason is given for dropping a TCP packet during TCP connection establishment
phase when the connection limit has been exceeded. The connection limit is configured via
the 'set connection conn-max' action command.

Recommendation:
    If this is incrementing rapidly, check the syslogs to determine which host's
connection limit is reached. The connection limit may need to be increased if the traffic
is normal, or the host may be under attack.

Syslogs:
    201011


------------------------------------------------------------------
Name: conn-limit
Connection limit reached:
    This reason is given for dropping a packet when the connection limit or host
connection limit has been exceeded. If this is a TCP packet which is dropped during TCP
connection establishment phase due to connection limit, the drop reason 'TCP connection
limit reached' is also reported.

Recommendation:
    If this is incrementing rapidly, check the syslogs to determine which host's
connection limit is reached. The connection limit may need to be increased if the traffic
is normal, or the host may be under attack.

Syslogs:
    201011


------------------------------------------------------------------
Name: tcp_xmit_partial
TCP retransmission partial:
    This counter is incremented and the packet is dropped when check-retranmission feature
is enabled and a partial TCP retransmission was received.

Recommendations:
    None

Syslogs:
    None


------------------------------------------------------------------
Name: tcpnorm-rexmit-bad
TCP bad retransmission:
    This counter is incremented and the packet is dropped when check-retranmission feature
is enabled and a TCP retranmission with different data from the original packet was
received.

Recommendations:
    None

Syslogs:
    None


------------------------------------------------------------------
Name: tcpnorm-win-variation
TCP unexpected window size variation:
```

```
    This counter is incremented and the packet is dropped when window size advertized by
TCP endpoint is drastically changed without accepting that much data.

Recommendations:
    In order to allow such packet, use the window-variation configuration under tcp-map.

Syslogs:
    None


----------------------------------------------------------------
Name: rate-exceeded
QoS rate exceeded:
    This counter is incremented when rate-limiting (policing) is configured on an
egress/ingress interface and the egress/ingress traffic rate exceeds the burst rate
configured. The counter is incremented for each packet dropped.

Recommendation:
    Investigate and determine why the rate of traffic leaving/entering the interface is
higher than the configured rate. This may be normal, or could be an indication of virus or
attempted attack.

Syslogs:
    None.


----------------------------------------------------------------
Name: queue-removed
Rate-limiter queued packet dropped:
    When QoS config is changed or removed, the existing packets in the output queues
awaiting transmission are dropped and this counter is incremented.

Recommendation:
    Under normal conditions, this may be seen when the QoS configuration has been changed
by the user. If this occurs when no changes to QoS config were performed, please contact
Cisco Technical Assistance Center (TAC).

Syslogs:
   None.


----------------------------------------------------------------
Name: bad-crypto
Bad crypto return in packet:
    This counter will increment when the appliance attempts to perform a crypto operation
on a packet and the crypto operation fails. This is not a normal condition and could
indicate possible software or hardware problems with the appliance

 Recommendation:
    If you are receiving many bad crypto indications your appliance may need servicing.
You should enable syslog 402123 to determine whether the crypto errors are hardware or
software errors. You can also check the error counter in the global IPSec statistics with
the 'show ipsec stats' CLI command. If the IPSec SA which is triggering these errors is
known, the SA statistics from the 'show ipsec sa detail' command will also be useful in
diagnosing the problem.

 Syslogs:
    402123


----------------------------------------------------------------
Name: ctm-error
CTM returned error:
```

```
    This counter will increment when the appliance attempts to perform a crypto operation
on a packet and the crypto operation fails. This is not a normal condition and could
indicate possible software or hardware problems with the appliance.

 Recommendation:
    If you are receiving many bad crypto indications your appliance may need servicing.
You should enable syslog 402123 to determine whether the crypto errors are hardware or
software errors. You can also check the error counter in the global IPSec statistics with
the 'show ipsec stats' CLI command. If the IPSec SA which is triggering these errors is
known, the SA statistics from the 'show ipsec sa detail' command will also be useful in
diagnosing the problem.

 Syslogs:
    402123


----------------------------------------------------------------
Name: send-ctm-error
Send to CTM returned error:
    This counter is obsolete in the appliance and should never increment.

 Recommendation:
    None

 Syslogs:
    None


----------------------------------------------------------------
Name: security-failed
Early security checks failed:
    This counter is incremented and packet is dropped when the security appliance :
    - receives an IPv4 multicast packet when the packets multicast MAC address doesn't
match the packets multicast destination IP address
    - receives an IPv6 or IPv4 teardrop fragment containing either small offset or
fragment overlapping
    - receives an IPv4 packet that matches an IP audit (IPS) signature

Recommendation:
    Contact the remote peer administrator or escalate this issue according to your
security policy
    For detailed description and syslogs for IP audit attack checks please refer the ip
audit signature section of command reference guide

Syslogs:
    106020
    400xx in case of ip audit checks


----------------------------------------------------------------
Name: sp-security-failed
Slowpath security checks failed:
    This counter is incremented and packet is dropped when the security appliance is:
    1) In routed mode receives a through-the-box:
       - L2 broadcast packet
       - IPv4 packet with destination IP address equal to 0.0.0.0
       - IPv4 packet with source IP address equal to 0.0.0.0
    2) In routed or transparent mode and receives a through-the-box IPv4 packet with:
       - first octet of the source IP address equal to zero
       - source IP address equal to the loopback IP address
       - network part of source IP address equal to all 0's
       - network part of the source IP address equal to all 1's
       - source IP address host part equal to all 0's or all 1's
```

```
    3) In routed or transparent mode and receives an IPv4 or IPv6 packet with same source
and destination IP addresses

Recommendation:
    1 and 2) Determine if an external user is trying to compromise the protected network.
Check for misconfigured clients.
    3) If this message counter is incrementing rapidly, an attack may be in progress. Use
the packet capture feature to capture type asp packets, and check the source MAC address
in the packet to see where they are coming from.

Syslogs:
    1 and 2) 106016
    3) 106017


-------------------------------------------------------------------
Name: ipv6_sp-security-failed
IPv6 slowpath security checks failed:
    This counter is incremented and the packet is dropped for one of the following
reasons:
1) IPv6 through-the-box packet with identical source and destination address.
2) IPv6 through-the-box packet with linklocal source or destination address.
3) IPv6 through-the-box packet with multicast destination address.

Recommendation:
    These packets could indicate malicious activity, or could be the result of a
misconfigured IPv6 host.  Use the packet capture feature to capture type asp packets, and
use the source MAC address to identify the source.

Syslogs:
    For identical source and destination address, syslog 106016, else none.


-------------------------------------------------------------------
Name: invalid-ip-option
IP option drop:
    This counter is incremented when any unicast packet with ip options or a multicast
packet with ip-options that have not been configured to be accepted, is received by the
security appliance. The packet is dropped.

Recommendation:
    Investigate why a packet with ip options is being sent by the sender.

Syslogs:
    None.


-------------------------------------------------------------------
Name: lu-invalid-pkt
Invalid LU packet:
    Standby unit received a corrupted Logical Update packet.

Recommendation:
    The packet corruption could be caused by a bad cable, interface card, line noise, or
software defect. If the interface appears to be functioning properly, then report the
problem to Cisco TAC.

Syslogs:
    None


-------------------------------------------------------------------
Name: fo-standby
Dropped by standby unit:
```

```
    If a through-the-box packet arrives at an appliance or context in a Standby state and
a flow is created, the packet is dropped and the flow removed. This counter will increment
each time a packet is dropped in this manner.

Recommendation:
    This counter should never be incrementing on the Active appliance or context. However,
it is normal to see it increment on the Standby appliance or context.

Syslogs:
    302014, 302016, 302018


----------------------------------------------------------------
Name: dst-l2_lookup-fail
Dst MAC L2 Lookup Failed:
    This counter will increment when the appliance is configured for transparent mode and
the appliance does a Layer 2 destination MAC address lookup which fails. Upon the lookup
failure, the appliance will begin the destination MAC discovery process and attempt to
find the location of the host via ARP and/or ICMP messages.

 Recommendation:
    This is a normal condition when the appliance is configured for transparent mode. You
can also execute (show mac-address-table) to list the L2 MAC address locations currently
discovered by the appliance.

 Syslogs:
    None


----------------------------------------------------------------
Name: l2_same-lan-port
L2 Src/Dst same LAN port:
    This counter will increment when the appliance/context is configured for transparent
mode and the appliance determines that the destination interface's L2 MAC address is the
same as its ingress interface.

 Recommendation:
    This is a normal condition when the appliance/context is configured for transparent
mode.  Since the appliance interface is operating in promiscuous mode, the
appliance/context receives all packets on the local LAN seqment.

 Syslogs:
    None


----------------------------------------------------------------
Name: flow-expired
Expired flow:
    This counter is incremented when the security appliance tries to inject a new or
cached packet belonging to a flow that has already expired.It is also incremented when the
appliance attempts to send an rst on a tcp flow that has already expired or when a packet
returns from IDS blade but the flow had already expired. The packet is dropped

Recommendation:
    If valid applications are getting pre-empted, investigate if a longer timeout is
needed.

Syslogs:
   None.


----------------------------------------------------------------
Name: inspect-icmp-out-of-app-id
ICMP Inspect out of App ID:
```

```
    This counter will increment when the ICMP inspection engine fails to allocate an 'App
ID' data structure. The structure is used to store the sequence number of the ICMP packet.

Recommendation:
    Check the system memory usage. This event normally happens when the system runs short
of memory.

Syslogs:
    None.


----------------------------------------------------------------
Name: inspect-icmp-bad-code
ICMP Inspect bad icmp code:
    This counter will increment when the ICMP code in the ICMP echo request or reply
message is non-zero.

Recommendation:
    No action required if it is an intermittent event.  If the cause is an attack, you can
deny the host using the ACLs.

Syslogs:
    313009.


----------------------------------------------------------------
Name: inspect-icmp-seq-num-not-matched
ICMP Inspect seq num not matched:
    This counter will increment when the sequence number in the ICMP echo reply message
does not match any ICMP echo message that passed across the appliance earlier on the same
connection.

Recommendation:
    No action required if it is an intermittent event. If the cause is an attack, you can
deny the host using the ACLs.

Syslogs:
    313004


----------------------------------------------------------------
Name: inspect-icmp-error-no-existing-conn
ICMP Error Inspect no existing conn:
    This counter will increment when the appliance is not able to find any established
connection related to the frame embedded in the ICMP error message.

Recommendation:
    No action required if it is an intermittent event.  If the cause is an attack, you can
deny the host using the ACLs.

Syslogs:
    313005


----------------------------------------------------------------
Name: inspect-icmp-error-nat64-error
ICMP NAT64 Error Inspect XLATE Error:
    This counter will increment when the appliance is unable to translate ICMP error
messages between IPv6 and IPv4.

Recommendation:
    No action required if it is an intermittent event.  If the cause is an attack, you can
deny the host using the ACLs.
```

```
Syslogs:
    313005


----------------------------------------------------------------
Name: inspect-icmp-nat64-frag
ICMP NAT64 Inspect Fragmentation Error:
    This counter will increment when the appliance is unable to translate ICMP messages
between IPv6 and IPv4 due to fragmentation.  Per RFC-6145, ICMP packet fragments will not
be translated.

Recommendation:
    No action required.

Syslogs:
    313005


----------------------------------------------------------------
Name: inspect-icmp-error-different-embedded-conn
ICMP Error Inspect different embedded conn:
    This counter will increment when the frame embedded in the ICMP error message does not
match the established connection that has been identified when the ICMP connection is
created.

Recommendation:
    No action required if it is an intermittent event.  If the cause is an attack, you can
deny the host using the ACLs.

Syslogs:
    313005


----------------------------------------------------------------
Name: inspect-icmpv6-error-invalid-pak
ICMPv6 Error Inspect invalid packet:
    This counter will increment when the appliance detects an invalid frame embedded in
the ICMPv6 packet. This check is the same as that on IPv6 packets. Examples: Incomplete
IPv6 header; malformed IPv6 Next Header; etc.

Recommendation:
    No action required.

Syslogs:
    None.


----------------------------------------------------------------
Name: inspect-icmpv6-error-no-existing-conn
ICMPv6 Error Inspect no existing conn:
    This counter will increment when the appliance is not able to find any established
connection related to the frame embedded in the ICMPv6 error message.

Recommendation:
    No action required if it is an intermittent event. If the cause is an attack, you can
deny the host using the ACLs.

Syslogs:
    313005


----------------------------------------------------------------
Name: inspect-dns-invalid-pak
DNS Inspect invalid packet:
```

```
    This counter will increment when the appliance detects an invalid DNS packet.
Examples: A DNS packet with no DNS header; the number of DNS resource records not matching
the counter in the header; etc.

Recommendation:
    No action required.

Syslogs:
    None.


----------------------------------------------------------------
Name: inspect-dns-invalid-domain-label
DNS Inspect invalid domain label:
    This counter will increment when the appliance detects an invalid DNS domain name or
label. DNS domain name and label is checked per RFC 1035.

Recommendation:
    No action required. If the domain name and label check is not desired, disable the
protocol-enforcement parameter in the DNS inspection policy-map (in supported releases).

Syslogs:
    None.


----------------------------------------------------------------
Name: inspect-dns-pak-too-long
DNS Inspect packet too long:
    This counter is incremented when the length of the DNS message exceeds the configured
maximum allowed value.

Recommendation:
    No action required.  If DNS message length checking is not desired, enable DNS
inspection without the 'maximum-length' option, or disable the 'message-length maximum'
parameter in the DNS inspection policy-map (in supported releases).

Syslogs:
    410001


----------------------------------------------------------------
Name: inspect-dns-out-of-app-id
DNS Inspect out of App ID:
    This counter will increment when the DNS inspection engine fails to allocate a data
structure to store the identification of the DNS message.
Recommendation:
    Check the system memory usage. This event normally happens when the system runs short
of memory.

Syslogs:
    None.


----------------------------------------------------------------
Name: inspect-dns-id-not-matched
DNS Inspect ID not matched:
    This counter will increment when the identification of the DNS response message does
not match any DNS queries that passed across the appliance earlier on the same connection.

Recommendation:
    No action required if it is an intermittent event. If the cause is an attack, you can
deny the host using the ACLs.

Syslogs:
```

```
    None.


----------------------------------------------------------------
Name: dns-guard-out-of-app-id
DNS Guard out of App ID:
    This counter will increment when the DNS Guard function fails to allocate a data
structure to store the identification of the DNS message.

Recommendation:
    Check the system memory usage.  This event normally happens when the system runs short
of memory.

Syslogs:
    None.


----------------------------------------------------------------
Name: dns-guard-id-not-matched
DNS Guard ID not matched:
    This counter will increment when the identification of the DNS response message does
not match any DNS queries that passed across the appliance earlier on the same connection.
This counter will increment by the DNS Guard function.

Recommendation:
    No action required if it is an intermittent event.  If the cause is an attack, you can
deny the host using the ACLs.

Syslogs:
    None.


----------------------------------------------------------------
Name: inspect-rtp-invalid-length
Invalid RTP Packet length:
    This counter will increment when the UDP packet length is less than the size of the
RTP header.

Recommendation:
    No action required. A capture can be used to figure out which RTP source is sending
the incorrect packets and you can deny the host using the ACLs.

Syslogs:
    None.


----------------------------------------------------------------
Name: inspect-rtp-invalid-version
Invalid RTP Version field:
    This counter will increment when the RTP version field contains a version other than
2.

Recommendation:
    The RTP source in your network does not seem to be sending RTP packets conformant with
the RFC 1889. The reason for this has to be identified and you can deny the host using
ACLs if required.

Syslogs:
    431001.


----------------------------------------------------------------
Name: inspect-rtp-invalid-payload-type
Invalid RTP Payload type field:
```

```
    This counter will increment when the RTP payload type field does not contain an audio
payload type when the signalling channel negotiated an audio media type for this RTP
secondary connection. The counter increments similarly for the video payload type.

Recommendation:
    The RTP source in your network is using the audio RTP secondary connection to send
video  or vice versa. If you wish to prevent this you can deny the host using ACLs.

Syslogs:
    431001.


----------------------------------------------------------------
Name: inspect-rtp-ssrc-mismatch
Invalid RTP Synchronization Source field:
    This counter will increment when the RTP SSRC field in the packet does not match the
SSRC which the inspect has been seeing from this RTP source in all the RTP packets.

Recommendation:
    This could be because the RTP source in your network is rebooting and hence changing
the SSRC or it could be because of another host on your network trying to use the opened
secondary RTP connections on the firewall to send RTP packets. This should be investigated
further to confirm if there is a problem.

Syslogs:
    431001.


----------------------------------------------------------------
Name: inspect-rtp-sequence-num-outofrange
RTP Sequence number out of range:
    This counter will increment when the RTP sequence number in the packet is not in the
range expected by the inspect.

Recommendation:
    No action is required because the inspect tries to recover and start tracking from a
new sequence number after a lapse in the sequence numbers from the RTP source.

Syslogs:
    431001.


----------------------------------------------------------------
Name: inspect-rtp-max-outofseq-paks-probation
RTP out of sequence packets in probation period:
    This counter will increment when the out of sequence packets when the RTP source is
being validated exceeds 20. During the probation period, the inspect looks for 5
in-sequence packets to consider the source validated.

Recommendation:
    Check the RTP source to see why the first few packets do not come in sequence and
correct it.

Syslogs:
    431001.


----------------------------------------------------------------
Name: inspect-rtcp-invalid-length
Invalid RTCP Packet length:
    This counter will increment when the UDP packet length is less than the size of the
RTCP header.

Recommendation:
```

```
    No action required. A capture can be used to figure out which RTP source is sending
the incorrect packets and you can deny the host using the ACLs.

Syslogs:
    None.


----------------------------------------------------------------
Name: inspect-rtcp-invalid-version
Invalid RTCP Version field:
    This counter will increment when the RTCP version field contains a version other than
2.

Recommendation:
    The RTP source in your network does not seem to be sending RTCP packets conformant
with the RFC 1889. The reason for this has to be identified and you can deny the host
using ACLs if required.

Syslogs:
    431002.


----------------------------------------------------------------
Name: inspect-rtcp-invalid-payload-type
Invalid RTCP Payload type field:
    This counter will increment when the RTCP payload type field does not contain the
values 200 to 204.

Recommendation:
    The RTP source should be validated to see why it is sending payload types outside of
the range recommended by the RFC 1889.

Syslogs:
    431002.


----------------------------------------------------------------
Name: cxsc-request
Flow terminated by CXSC:
This reason is given for terminating a flow as requested by CXSC module. Recommendations:
Check syslogs and alerts on CXSC module.
Syslogs: 429002


----------------------------------------------------------------
Name: cxsc-fail
CXSC config removed for connection:
    This counter is incremented and the packet is dropped when CXSC configuration is not
found for a particular connection.

Recommendations:
   check if any configuration changes have been done for CXSC.

Syslogs:
   None


----------------------------------------------------------------
Name: cxsc-fail-close
CXSC fail-close:
    This reason is given for terminating a flow since CXSC card is down and fail-close
option was used with CXSC action.

Recommendations:
```

```
    Check and bring up CXSC card.

Syslogs:
    429001


----------------------------------------------------------------
Name: cxsc-bad-tlv-received
CXSC Module requested drop:
    This counter is incremented and the packet is dropped as requested by CXSC module when
the packet has bad TLV's.

Recommendations:
    Check syslogs and alerts on CXSC module.

Syslogs:
    None


----------------------------------------------------------------
Name: cxsc-ha-request
CXSC HA replication drop:
    This counter is incremented when the security appliance receives a CXSC HA request
packet, but could not process it and the packet is dropped.

Recommendation:
    This could happen occasionally when CXSC does not have the latest ASA HA state, like
right after ASA HA state change. If the counter is constantly increasing however, then it
can be because CXSC and ASA are out of sync. If that happens, contact Cisco TAC for
assistance.

Syslogs:
    None.


----------------------------------------------------------------
Name: cxsc-invalid-encap
CXSC invalid header drop:
    This counter is incremented when the security appliance receives a CXSC packet with
invalid messsage header, and the packet is dropped.

Recommendation:
    This should not happen. Contact Cisco TAC for assistance.

Syslogs:
    None.


----------------------------------------------------------------
Name: cxsc-malformed-packet
CXSC Module requested drop:
    This counter is incremented and the packet is dropped as requested by CXSC module when
the packet is malformed.

Recommendations:
    Check syslogs and alerts on CXSC module.

Syslogs:
    None


----------------------------------------------------------------
Name: ips-request
IPS Module requested drop:
```

```
    This counter is incremented and the packet is dropped as requested by IPS module when
the packet matches a signature on the IPS engine.

Recommendations:
    Check syslogs and alerts on IPS module.

Syslogs:
    420002


----------------------------------------------------------------
Name: ips-fail-close
IPS card is down:
    This counter is incremented and the packet is dropped when IPS card is down and
fail-close option was used in IPS inspection.

Recommendations:
    Check and bring up the IPS card.

Syslogs:
    420001


----------------------------------------------------------------
Name: ips-fail
IPS config removed for connection:
    This counter is incremented and the packet is dropped when IPS configuration is not
found for a particular connection.

Recommendations:
   check if any configuration changes have been done for IPS.

Syslogs:
   None


----------------------------------------------------------------
Name: ips-no-ipv6
Executing IPS software does not support IPv6:
    This counter is incremented when an IPv6 packet, configured to be directed toward IPS
SSM, is discarded since the software executing on IPS SSM card does not support IPv6.

Recommendations:
   Upgrade the IPS software to version 6.2 or later.

Syslogs:
   None


----------------------------------------------------------------
Name: l2_acl
FP L2 rule drop:
    This counter will increment when the appliance denies a packet due to a layer-2 ACL.
By default, in routed mode the appliance will PERMIT:
    1) IPv4 packets
    2) IPv6 packets
    3) ARP packets
    4) L2 Destination MAC of FFFF:FFFF:FFFF (broadcast)
    5) IPv4 MCAST packet with destination L2 of 0100:5E00:0000-0100:5EFE:FFFF
    6) IPv6 MCAST packet with destination L2 of 3333:0000:0000-3333:FFFF:FFFF

    By default, in Transparent mode permits the routed mode ACL and PERMITS:

    1) BPDU packets with destination L2 of 0100:0CCC:CCCD
```

```
    2) Appletalk packets with destination L2 of 0900:0700:0000-0900:07FF:FFFF

    The user can also configure ethertype ACL(s) and apply them to an interface to permit
other types of L2 traffic.

    The default L2 ACL can be seen in routed and transparent mode with the show asp table
classify domain permit command.

    Note - Packets permitted by L2 ACLs may still be dropped by L3-L4 ACLs.

 Recommendation:
    If your running the appliance/context in transparent mode and your non-IP packets are
dropped by the appliance, you can configure an ethertype ACL and apply the ACL to an
access group. Note - the appliance ethertype CLI only supports protocol types and not L2
destination MAC addresses.

 Syslogs:
    106026, 106027


----------------------------------------------------------------
Name: intercept-unexpected
Intercept unexpected packet:
    Either received data from client while waiting for SYNACK from server or received a
packet which cannot be handled in a particular state of TCP intercept.

Recommendation:
    If this drop is causing the connection to fail, please have a sniffer trace of the
client and server side of the connection while reporting the issue. The box could be under
attack and the sniffer traces or capture would help narrowing down the culprit.

Syslogs:
    None.


----------------------------------------------------------------
Name: no-mcast-entry
FP no mcast entry:
    A packet has arrived that matches a multicast flow, but the multicast service is no
longer enabled, or was re-enabled after the flow was built.
    - OR -
    A multicast entry change has been detected after a packet was punted to the CP, and
the NP can no longer forward the packet since no entry is present.

Recommendation:
    Reenable multicast if it is disabled.
    - OR -
    No action required.

Syslogs:
    None


----------------------------------------------------------------
Name: no-mcast-intrf
FP no mcast output intrf:
    All output interfaces have been removed from the multicast entry.
    - OR -
    The multicast packet could not be forwarded.

Recommendation:
    Verify that there are no longer any receivers for this group.
    - OR -
    Verify that a flow exists for this packet.
```

```
Syslogs:
    None


----------------------------------------------------------------
Name: fragment-reassembly-failed
Fragment reassembly failed:
    This counter is incremented when the appliance fails to reassemble a chain of
fragmented packets into a single packet. All the fragment packets in the chain are
dropped. This is most probably because of failure while allocating memory for the
reassembled packet.

Recommendation:
    Use the show blocks command to monitor the current block memory.

Syslogs:
    None


----------------------------------------------------------------
Name: ifc-classify
Virtual firewall classification failed:
    A packet arrived on a shared interface, but failed to classify to any specific context
interface.

Recommendation:
    For software versions without customizable mac-address support, use the "global" or
"static" command to specify the IPv4 addresses that belong to each context interface.  For
software versions with customizable mac-address support, enable "mac-address auto" in
system context.  Alternatively, configure unique MAC addresses for each context interfaces
residing over a shared interface with "mac-address" command under each context interface
submode.

Syslogs:
    None.


----------------------------------------------------------------
Name: connection-lock
Connection locking failed:
    While the packet was waiting for processing, the flow that would be usedwas destroyed.

Recommendation:
    The message could occur from user interface command to remove connection in an device
that is actively processing packet.  Otherwise, investigate flow drop counter.  This
message may occur if the flow are forced dropped from error.

Syslogs:
    None.


----------------------------------------------------------------
Name: interface-down
Interface is down:
    This counter will increment for each packet received on an interface that is shutdown
via the 'shutdown' interface sub-mode command. For ingress traffic, the packet is dropped
after security context classification and if the interface associated with the context is
shut down. For egress traffic, the packet is dropped when the egress interface is shut
down.

Recommendation:
    No action required.
```

```
Syslogs:
    None.


-----------------------------------------------------------------
Name: invalid-app-length
Invalid App length:
    This counter will increment when the appliance detects an invalid length of the Layer
7 payload in the packet.  Currently, it counts the drops by the DNS Guard function only.
Example: Incomplete DNS header.

Recommendation:
    No action required.

Syslogs:
    None.


-----------------------------------------------------------------
Name: loopback-buffer-full
Loopback buffer full:
    This counter is incremented and the packet is dropped when packets are sent from one
context of the appliance to another context through a shared interface and there is no
buffer space in loopback queue.

Recommendations:
    Check system CPU to make sure it is not overloaded.

Syslogs:
    None


-----------------------------------------------------------------
Name: non-ip-pkt-in-routed-mode
Non-IP packet received in routed mode:
    This counter will increment when the appliance receives a packet which is not IPv4,
IPv6 or ARP and the appliance/context is configured for routed mode. In normal operation
such packets should be dropped by the default L2 ACL configuration.

 Recommendation:
    This indicates that a software error should be reported to the Cisco TAC.

 Syslogs:
    106026, 106027


-----------------------------------------------------------------
Name: host-move-pkt
FP host move packet:
    This counter will increment when the appliance/context is configured for transparent
and source interface of a known L2 MAC address is detected on a different interface.

 Recommendation:
    This indicates that a host has been moved from one interface (i.e. LAN segment) to
another. This condition is normal while in transparent mode if the host has in fact been
moved. However, if the host move toggles back and forth between interfaces, a network loop
may be present.

 Syslogs:
    412001, 412002, 322001


-----------------------------------------------------------------
Name: tfw-no-mgmt-ip-config
```

```
No management IP address configured for TFW:
    This counter is incremented when the security appliance receives an IP packet in
transparent mode and has no management IP address defined. The packet is dropped.

Recommendation:
    Configure the device with management IP address and mask values.

Syslogs:
    322004


----------------------------------------------------------------
Name: shunned
Packet shunned:
    This counter will increment when a packet is received which has a source IP address
that matches a host in the shun database.

Recommendation:
    No action required.

Syslogs:
    401004


----------------------------------------------------------------
Name: rm-conn-limit
RM connection limit reached:
    This counter is incremented when the maximum number of connections for a context or
the system has been reached and a new connection is attempted.

 Recommendation:
    The device administrator can use the commands 'show resource usage' and 'show resource
usage system' to view context and system resource limits and 'Denied' counts and adjust
resource limits if desired.

 Syslogs:
    321001


----------------------------------------------------------------
Name: rm-conn-rate-limit
RM connection rate limit reached:
    This counter is incremented when the maximum connection rate for a context or the
system has been reached and a new connection is attempted.

 Recommendation:
    The device administrator can use the commands 'show resource usage' and 'show resource
usage system' to view context and system resource limits and 'Denied' counts and adjust
resource limits if desired.

 Syslogs:
    321002


----------------------------------------------------------------
Name: np-socket-closed
Dropped pending packets in a closed socket:
    If a socket is abruptly closed, by the user or software, then any pending packets in
the pipeline for that socket are also dropped. This counter is incremented for each packet
in the pipeline that is dropped.

Recommendation:
```

```
    It is common to see this counter increment as part of normal operation. However, if
the counter is rapidly incrementing and there is a major malfunction of socket-based
applications, then this may be caused by a software defect. Contact the Cisco TAC to
investigate the issue further.

Syslogs:
    None.


----------------------------------------------------------------
Name: mp-pf-queue-full
Port Forwarding Queue Is Full:
       This counter is incremented when the Port Forwarding application's internal queue
is full and it receives another packet  for transmission.

Recommendation:
    This indicates that a software error should be reported to the Cisco TAC.

Syslogs:
    None.


----------------------------------------------------------------
Name: ssm-dpp-invalid
Invalid packet received from SSM card:
    This counter only applies to the ASA 5500 series adaptive security appliance. It is
incremented when the security appliance receives a packet from the internal data plane
interface but could not find the proper driver to parse it.

Recommendation:
    The data plane driver is dynamically registered depending on the type of SSM installed
in the system. So this could happen if data plane packets arrive before the security
appliance is fully initialized. This counter is usually 0. You should not be concerned if
there are a few drops. However, if this counter keeps rising when system is up and
running, it may indicate a problem. Please contact Cisco Technical Assistance Center (TAC)
if you suspect it affects the normal operation of your the security appliance.

Syslogs:
    None.


----------------------------------------------------------------
Name: ssm-asdp-invalid
Invalid ASDP packet received from SSM card:
    This counter only applies to the ASA 5500 series adaptive security appliance. It is
incremented when the security appliance receives an ASA SSM Dataplane Protocol (ASDP)
packet from the internal data plane interface, but the driver encountered a problem when
parsing the packet. ASDP is a protocol used by the security appliance to communicate with
certain types of SSMs, like the CSC-SSM. This could happen for various reasons, for
example ASDP protocol version is not compatible between the security appliance and SSM, in
which case the card manager process in the control plane issues system messages and CLI
warnings to inform you of the proper version of images that need to be installed; the ASDP
packet belongs to a connection that has already been terminated on the security appliance;
the security appliance has switched to the standby state (if failover is enable) in which
case it can no longer pass traffic; or any unexpected value when parsing the ASDP header
and payload.

Recommendation:
    The counter is usually 0 or a very small number. But user should not be concerned if
the counter slowly increases over the time, especially when there has been a failover, or
you have manually cleared connections on the security appliance via CLI. If the counter
increases drastically during normal operation, please contact Cisco Technical Assistance
Center (TAC).
```

```
Syslogs:
    421003
    421004


------------------------------------------------------------------
Name: ssm-app-request
Service module requested drop:
    This counter only applies to the ASA 5500 series adaptive security appliance. It is
incremented when the application running on the SSM requests the security appliance to
drop a packet.

Recommendation:
    More information could be obtained by querying the incident report or system messages
generated by the SSM itself. Please consult the documentation that comes with your SSM for
instructions.

Syslogs:
    None.


------------------------------------------------------------------
Name: ssm-app-fail
Service module is down:
    This counter only applies to the ASA 5500 series adaptive security appliance. It is
incremented when a packet to be inspected by the SSM is dropped because the SSM has become
unavailable. Some examples of this are: software or hardware failure, software or
signature upgrade, or the module being shut down.

Recommendation:
    The card manager process running in the security appliance control plane would have
issued system messages and CLI warning to inform you of the failure. Please consult the
documentation that comes with the SSM to trouble shoot the SSM failure. Contact Cisco
Technical Assistance Center (TAC) if needed.

Syslog:
    None.


------------------------------------------------------------------
Name: wccp-return-no-route
No route to host for WCCP returned packet:
    This counter is incremented when a packet is returned from the Cache Engine and the
security appliance does not find a route for the original source of the packet.

Recommendation:
    Verify that a route exists for the source ip address of the packet returned from Cache
Engine.

Syslogs:
    None.


------------------------------------------------------------------
Name: wccp-redirect-no-route
No route to Cache Engine:
    This counter is incremented when the security appliance tries to redirect a packet and
does not find a route to the Cache Engine.

Recommendation:
    Verify that a route exists for Cache Engine.

Syslogs:
   None.
```

```
----------------------------------------------------------------
Name: telnet-not-permitted
Telnet not permitted on least secure interface:
    This counter is incremented and packet is dropped when the appliance receives a TCP
SYN packet attempting to establish a TELNET session to the appliance and that packet was
received on the least secure interface.

 Recommendation:
    To establish a Telnet session to the appliance via the least secure interface, first
establish an IPSec tunnel to that interface and then connect the Telnet session over that
tunnel.

 Syslogs:
    402117


----------------------------------------------------------------
Name: ipv6-sp-security-failed
IPv6 slowpath security checks failed:
    This counter is incremented and the packet is dropped for one of the following
reasons:
1) IPv6 through-the-box packet with identical source and destination address.
2) IPv6 through-the-box packet with linklocal source or destination address.
3) IPv6 through-the-box packet with multicast destination address.

Recommendation:
    These packets could indicate malicious activity, or could be the result of a
misconfigured IPv6 host.  Use the packet capture feature to capture type asp packets, and
use the source MAC address to identify the source.
Syslogs:
    For identical source and destination address, syslog 106016, else none.


----------------------------------------------------------------
Name: ipv6-eh-inspect-failed
IPv6 extension header is detected and denied:
    This counter is incremented and packet is dropped when the appliance receives a IPv6
packet but extension header could not be inspected due to memory allocation failed.

 Recommendation:
Also check 'show memory' output to make sure appliance has enough memory to operate.

 Syslogs:
    None


----------------------------------------------------------------
Name: ipv6-bad-eh
Bad IPv6 extension header is detected and denied:
    This counter is incremented and packet is dropped when the appliance receives a IPv6
packet with bad extension header.

 Recommendation:
Check 'verify-header type' of 'parameters' in 'policy-map type ipv6'. Remove
'verify-header type' if the header conformance can be skipped.

 Syslogs:
    325005


----------------------------------------------------------------
Name: ipv6-bad-eh-order
```

```
IPv6 extension headers not in proper order is detected and denied:
    This counter is incremented and packet is dropped when the appliance receives a IPv6
packet with extension headers not in proper order.

 Recommendation:
Check 'verify-header order' of 'parameters' in 'policy-map type ipv6'. Remove
'verify-header order' if the header order can be arbitrary.

 Syslogs:
    325005


----------------------------------------------------------------
Name: ipv6-mobility-denied
IPv6 mobility extension header is denied by user configuration:
    This counter is incremented and packet is dropped when the appliance receives a IPv6
packet with mobility extension header which is denied by the user configuration rule.

 Recommendation:
    Check action of 'match header mobility' in 'policy-map type ipv6'. Remove action
'drop' if mobility should be allowed.

 Syslogs:
    325004


----------------------------------------------------------------
Name: ipv6-mobility-type-denied
IPv6 mobility type extension header is denied by user configuration:
    This counter is incremented and packet is dropped when the appliance receives a IPv6
packet with mobility type extension header which is denied by the user configuration rule.

 Recommendation:
    Check action of 'match header mobility type' in 'policy-map type ipv6'. Remove action
'drop' if mobility should be allowed.

 Syslogs:
    325004


----------------------------------------------------------------
Name: ipv6-fragment-denied
IPv6 fragmentation extension header is denied by user configuration:
    This counter is incremented and packet is dropped when the appliance receives a IPv6
packet with fragmentation extension header which is denied by the user configuration rule.

 Recommendation:
    Check action of 'match header fragmentation' in 'policy-map type ipv6'. Remove action
'drop' if fragmentation should be allowed.

 Syslogs:
    325004


----------------------------------------------------------------
Name: ipv6-routing-address-denied
IPv6 routing extension header exceeding configured maximum routing addresses is denied:
routing count is denied by IPv6 extension header configuration:
    This counter is incremented and packet is dropped when the appliance receives a IPv6
packet with too many routing addresses in routing extension header whichis denied by the
user configuration rule.

 Recommendation:
```

```
    Check action of 'match header routing-address count' in 'policy-map type ipv6'. Remove
action 'drop' or increase <count> if <count> routing addresses should be allowed.

 Syslogs:
    325004


----------------------------------------------------------------
Name: ipv6-routing-type-denied
routing type is denied by IPv6 extension header configuration:
    This counter is incremented and packet is dropped when the appliance receives a IPv6
packet with routing type extension header which is denied by the user configuration rule.

 Recommendation:
    Check action of 'match header routing-type' in 'policy-map type ipv6'. Remove action
'drop' if routing-type should be allowed.

 Syslogs:
    325004


----------------------------------------------------------------
Name: ipv6-eh-count-denied
IPv6 extension headers exceeding configured maximum extension headers is denied:
extension header count is denied by IPv6 extension header configuration:
    This counter is incremented and packet is dropped when the appliance receives a IPv6
packet with fragmentation extension header which is denied by the user configuration rule.

 Recommendation:
    Check action of 'match header fragmentation' in 'policy-map type ipv6'. Remove action
'drop' if fragmentation should be allowed.

 Syslogs:
    325004


----------------------------------------------------------------
Name: ipv6-dest-option-denied
destination-option is denied by IPv6 extension header configuration:
    This counter is incremented and packet is dropped when the appliance receives a IPv6
packet with destination-option extension header which is denied by the user configuration
rule.

 Recommendation:
    Check action of 'match header destination-option' in 'policy-map type ipv6'. Remove
action 'drop' if destination-option should be allowed.

 Syslogs:
    325004


----------------------------------------------------------------
Name: ipv6-hop-by-hop-denied
IPv6 hop-by-hp extension header is denied by user configuration:
    This counter is incremented and packet is dropped when the appliance receives a IPv6
packet with hop-by-hop extension header which is denied by the user configuration rule.

 Recommendation:
    Check action of 'match header hop-by-hop' in 'policy-map type ipv6'. Remove action
'drop' if hop-by-hop should be allowed.

 Syslogs:
    325004
```

```
------------------------------------------------------------------
Name: ipv6-esp-denied
ESP is denied by IPv6 extension header configuration:
    This counter is incremented and packet is dropped when the appliance receives a IPv6
packet with ESP extension header which is denied by the user configuration rule.

 Recommendation:
    Check action of 'match header esp' in 'policy-map type ipv6'. Remove action 'drop' if
ESP should be allowed.

 Syslogs:
    325004


------------------------------------------------------------------
Name: ipv6-ah-denied
AH is denied by IPv6 extension header configuration:
    This counter is incremented and packet is dropped when the appliance receives a IPv6
packet with AH extension header which is denied by the user configuration rule.

 Recommendation:
    Check action of 'match header ah' in 'policy-map type ipv6'. Remove action 'drop' if
AH should be allowed.

 Syslogs:
    325004


------------------------------------------------------------------
Name: channel-closed
Data path channel closed:
    This counter is incremented when the data path channel has been closed before the
packet attempts to be sent out through this channel.

Recommendation:
    It is normal in multi-processor system when one processor closes the channel (e.g.,
via CLI), and another processor tries to send a packet through the channel.

 Syslogs:
    None


------------------------------------------------------------------
Name: dispatch-decode-err
Diapatch decode error:
    This counter is incremented when the packet dispatch module finds an error when
decoding the frame.  An example is an unsupported packet frame.
Recommendation:
    Verify the packet format with a capture tool.

 Syslogs:
    None


------------------------------------------------------------------
Name: cp-event-queue-error
CP event queue error:
    This counter is incremented when a CP event queue enqueue attempt has failed due to
queue length exceeded. This queue is used by the data-path to punt packets to the
control-point for additional processing. This condition is only possible in a
multi-processor enviroment. The module that attempted to enqueue the packet may issue its
own packet specific drop in response to this error.
```

```
Recommendation:
    While this error does indicate a failure to completely process a packet, it may not
adversely affect the connection. If the condition persists or connections are adversely
affected contact the Cisco Technical Assistance Center (TAC).

Syslogs:
    None


----------------------------------------------------------------
Name: host-limit
Host limit exceeded:
    This counter is incremented when the licensed host limit is exceeded.

Recommendation:
    None.

Syslogs:
    450001


----------------------------------------------------------------
Name: cp-syslog-event-queue-error
CP syslog event queue error:
    This counter is incremented when a CP syslog event queue enqueue attempt has failed
due to queue length exceeded. This queue is used by the data-path to punt logging events
to the control-point when logging destinations other than to a UDP server are configured.
This condition is only possible in a multi-processor environment.

Recommendation:
    While this error does indicate a failure to completely process a logging event,
logging to UDP servers should not be affected. If the condition persists consider lowering
the logging level and/or removing logging destinations or contact the Cisco Technical
Assistance Center (TAC).

Syslogs:
    None


----------------------------------------------------------------
Name: dispatch-block-alloc
Dispatch block unavailable:
     This counter is incremented and the packet is dropped when the appliance could not
allocate a core local block to process the packet that was received by the interface
driver.

Recommendation:
    This may be due to packets being queued for later processing or a block leak. Core
local blocks may also not be available if they are not replenished on time by the free
resource rebalancing logic. Please use "show blocks core" to further diagnose the problem.

Syslogs:
    None


----------------------------------------------------------------
Name: async-lock-queue-limit
Async lock queue limit exceeded:
    Each async lock working queue has a limit of 1000. When more SIP packets are attempted
to be dispatch to the work queue, packet will be dropped.

Recommendation:
```

```
    Only SIP traffic may be dropped. When SIP packets have the same parent lock and they
can be queued into the same async lock queue, thus may result into blocks depletion,
becasue only single core is handling all the media. If a SIP packet attempts to be queued
when the size of the async lock queue exceeds the limit, the packet will be dropped.

Syslogs:
    None.


----------------------------------------------------------------
Name: loopback-lock-failed
Loopback lock failed
    This counter is incremented and the packet is dropped when packets are sent from one
context of the appliance to another context through a shared intrface and the loopback
queue has failed to acquire a lock.

Recommendations:
    This condition should never be encountered during normal operation and may indicate a
software problem with the appliance. Contact the Cisco Techncial Assistance Center (TAC)
if this error occurs.

Syslogs:
    None

----------------------------------------------------------------
Name: loopback-ifc-not-found
Loopback output interface not found
    This counter is incremented and the packet is dropped when packets are sent from one
context of the appliance to another context through a shared interface, and the output
interface is not found by the loopback queue.

Recommendations:
    This condition should never be encountered during normal operation and may indicate a
software problem with the appliance. Contact the Cisco Techncial Assistance Center (TAC)
if this error occurs.

Syslogs:
    None


----------------------------------------------------------------
Name: loopback-count-exceeded
Loopback count exceeded
    This counter is incremented and the packet is dropped when a packet is sent from one
context of the appliance to another context through a shared intreface, but this packet
has exceeded the number of times it is allowed to queue to the loopback queue.

Recommendations:
    Check the context configuration for each context. The packet is entering a loop in the
context configurations so that it is stuck between contexts, and is repeatedly put into
the loopback queue.

Syslogs:
    None


----------------------------------------------------------------
Name: ips-license-disabled-fail-close
IPS module license disabled
    The IPS module license has been disabled and when the fail-close mode is configured,
all traffic destined for the IPS module will be dropped. The status of the license can be
checked using the "show activation-key" command.

Recommendation:
```

```
    Please apply an activation key using the "activation-key" command that has the IPS
license enabled.

Syslogs:
    420008


------------------------------------------------------------------
Name: backplane-channel-null
Backplane channel null:
The card backplane channel was NULL. This may happen because the channel
was not initialized correctly and had to be closed. ASA will drop the packet.
Recommendation:
    This should not happen. Contact Cisco TAC for assistance.

Syslogs:
    None.


------------------------------------------------------------------


------------------------------------------------------------------
Name: svc-conn-timer-cb-fail
SVC connection timer callback failure:
    This condition occurs when there is a failed attempt to place an event on the async
lock queue for that connection.

 Recommendation:
    None.

 Syslogs:
    None.


------------------------------------------------------------------
Name: svc-udp-conn-timer-cb-fail
SVC UDP connection timer callback failure:
    This condition occurs when there is a failed attempt to place an event on the async
lock queue for that connection.

 Recommendation:
    None.

 Syslogs:
    None.


------------------------------------------------------------------
Name: nat64/46-conversion-fail
IPv6 to IPv4 or vice-versa conversion failure:
    This condition occurs when there is a failure in coversion of IPv6 traffic to IPv4 or
vice-versa.

 Recommendation:
    None.

 Syslogs:
    None.


------------------------------------------------------------------
Name: cluster-cflow-clu-closed
Cluster flow with CLU closed on owner:
```

```
    Director/backup unit received a cluster flow clu delete message from the owner unit
and terminated the flow.

Recommendation:
    This counter should increment for every replicated clu that is torn down on the owner
unit.

Syslogs:
    None.


----------------------------------------------------------------
Name: cluster-cflow-clu-timeout
Cluster flow with CLU removed from due to idle timeout:
    A cluster flow with CLU is considered idle if the director/backup unit no longer
receives periodic updates from the owner, which is supposed to happen at fixed intervals
when the flow is alive.

Recommendation:
    This counter is informational.

Syslogs:
    None.


----------------------------------------------------------------
Name: cluster-redirect
Flow matched a cluster redirect classify rule:
    A stub forwarding flow will thereafter forward packets to the cluster unit that owns
the flow.

Recommendations:
    This counter is informational and the behavior expected. The packet was forwarded to
the owner over the Cluster Control Link.

Syslogs:
    None.


----------------------------------------------------------------
Name: cluster-drop-on-slave
Flow matched a cluster drop-on-slave classify rule:
    This is for cases that the packets from L3 subnet are seen by all units and only
master unit need to process them.

Recommendations:
    This counter is informational and the behavior expected. The packet is processed by
master.

Syslogs:
    None.


----------------------------------------------------------------
Name: cluster-director-change
The flow director changed due to a cluster join event:
    A new unit joined the cluster and is now the director for the flow. The old
director/backup has removed it's flow and the flow owner will update the new director.

Recommendations:
    This counter is informational and the behavior expected.

Syslogs:
    None.
```

```
----------------------------------------------------------------
Name: cluster-mcast-owner-change
The multicast flow owner changed due to a cluster join or leave event:
     This flow gets created on a new owner unit.

Recommendations:
    This counter is informational and the behavior expected.

Syslogs:
    None.


----------------------------------------------------------------
Name: cluster-convert-to-dirbak
Forwarding or redirect flow converted to director or backup flow:
    Forwarding or redirect flow is removed, so that director or  backup flow can be
created.

Recommendations:
    This counter is informational and the behavior expected.

Syslogs:
    None.


----------------------------------------------------------------
Name: inspect-scansafe-server-not-reachable
Scansafe server is not configured or the cloud is down:
    Either the scansafe server IP is not specified in the scansafe general options or the
scansafe server is not reachable.

Recommendations:
    This counter is informational and the behavior expected.

Syslogs:
    None.


----------------------------------------------------------------
Name: inspect-scansafe-public_key_not_configured
Scansafe public key not configured:
    This counter is incremented when the scansafe public key is not configured. The packet
is dropped and the connection isclosed.

Recommendation:
    Verify if the configured scansafe public key is configured on the security appliance.

Syslogs:
    775002.


----------------------------------------------------------------
Name: inspect-scansafe-license-key-not-configured
Scansafe license key not configured:
    This counter is incremented when the scansafe licnese key is not configured. The
packet is dropped and the connection isclosed.

Recommendation:
    Verify if the configured scansafe license key is configured on the security appliance.

Syslogs:
    775002.
```

```
------------------------------------------------------------------
Name: inspect-scansafe-encoding-failed
Inspect  scansafe header encoding failed :
    This counter is incremented when the base64 encoding of user and group name is failed.
The packet is dropped and connection is closed.

Syslogs:
    775002.


------------------------------------------------------------------
Name: inspect-scansafe-hdr-encryption-failed
Inspect  scansafe header encryption failed:
    This counter is incremented when the encryption of scansafe header is failed. The
packet is dropped and connection is closed.

Syslogs:
    775002.


------------------------------------------------------------------
Name: inspect-scansafe-max-conn-reached
Inspect  scansafe max allowed connections reached:
    This counter is incremented when we get a new connection and the maximum allowed
concurrent scansafe connection for the platform is already reached. The packet is dropped
and connection is closed.

Syslogs:
    775002.


------------------------------------------------------------------
Name: inspect-scansafe-duplicate-conn
Inspect scansafe duplicate connection:
     This counter is incremented when duplicate connection with the same source ip address
and port. This packet will be dropped and connection will be closed.

Syslogs:
    775002.


------------------------------------------------------------------
Name: cluster-director-closed
Flow removed due to director flow closed:
    Owner unit received a cluster flow clu delete message from the director unit and
terminated the flow.

Recommendation:
    This counter should increment for every replicated clu that is torn down on the
director unit.

Syslogs:
    None.


------------------------------------------------------------------
Name: cluster-pinhole-master-change
Master only pinhole flow removed at bulk sync due to master change:
    Master only pinhole flow is removed during bulk sync becase cluster master has
changed.

Recommendation:
```

```
    This counter is informational and the behavior expected.

Syslogs:
    302014


------------------------------------------------------------------
Name: np-socket-lock-failure
Dropped pending packets due to a failed attempt to get an internal socket lock:
    This error occurs if an attempt to grab an internal socket lock fails.

Recommendation:
    This condition should never be encountered during normal operation and     may
indicate a software problem with the appliance.  Contact the Cisco     Technical
Assistance Center (TAC) if this error occurs.

Syslogs:
    None.


------------------------------------------------------------------
Name: mp-service-inject-failed
SERVICE Module failed to inject a packet:
    This error occurs if an attempt to inject a packet via the SERVICE     Module fails.

Recommendation:
    None.

Syslogs:
    None.


------------------------------------------------------------------
Name: nat-64-or-46-conversion-fail
IPv6 to IPv4 or vice-versa conversion failure:
    This condition occurs when there is a failure in coversion of     IPv6 traffic to IPv4
or vice-versa.

Recommendation:
    Verify if the NAT64 or NAT46 policies are configured properly.

Syslogs:
    None.


------------------------------------------------------------------
Name: cluster-not-owner
Cluster not owner:
    A Cluster data packet was received without a flow.
Recommendation:
    None.
Syslogs:
    None.


------------------------------------------------------------------
Name: cluster-ccl-cfull-sent
CLU FULL sent:
    A Cluster data packet was received over CCL and full flow is built on a new owner.
This packet is no longer needed.
Recommendation:
    None.
Syslogs:
    None.
```

```
------------------------------------------------------------------
Name: cluster-ccl-backup
Cluster CCL backup:
    A Cluster data packet was received over CCL on a backup unit, when it should have been
received on the owner+director unit.
Recommendation:
    None.
Syslogs:
    None.


------------------------------------------------------------------
Name: cluster-ccl-unknown-stub
Cluster CCL unknown stub:
    A Cluster data packet was received over CCL and a matching stub flow found, but unit
has unknown role.
Recommendation:
    None.
Syslogs:
    None.


------------------------------------------------------------------
Name: cluster-stub-to-full
Cluster stub to full flow:
    A Cluster packet was received on director, stub flow was converted to full flow. Drop
this packet and wait for retransmission.
Recommendation:
    None.
Syslogs:
    None.


------------------------------------------------------------------
Name: cluster-ccl-unknown
Cluster CCL unknown role:
    A Cluster data packet was received over CCL and no matching flow is found, and unit
has unknown role.
Recommendation:
    None.
Syslogs:
    None.


------------------------------------------------------------------
Name: cluster-owner-update
Cluster owner update:
    A Cluster data packet was received updating the flow owner.
Recommendation:
    None.
Syslogs:
    None.


------------------------------------------------------------------
Name: cluster-invalid-pkt
Cluster rcvd invalid packet:
    An invalid cluster packet was received.
Recommendation:
    None.
Syslogs:
    None.
```

```
------------------------------------------------------------------
Name: cluster-no-msgp
Cluster unit is out of message descriptor:
    Cluster unit is out of message descriptor.
Recommendation:
    None.
Syslogs:
    None.


------------------------------------------------------------------
Name: cluster-slave-ignored
Flow matched a cluster drop-on-slave classify rule:
    A multicast routing packet was received on a L3 cluster     interface when the unit
was a slave. Only a master unit     is permitted to process these packets.
Recommendation:
    This counter is informational and the behavior expected. The packet is    processed by
master.
Syslogs:
    None.


------------------------------------------------------------------
Name: cluster-non-owner-ignored
Flow matched a cluster drop-on-non-owner classify rule:
    A multicast data packet was received on a L3 cluster     interface when the unit was
not an elected owner unit.     Only an elected owner unit is permitted to process
these packets.
Recommendation:
    This counter is informational and the behavior expected. The packet is    processed by
one elected owner unit.
Syslogs:
    None.


------------------------------------------------------------------
Name: nat-xlate-failed
NAT failed:
    Failed to create an xlate to translate an IP or transport header.

Recommendation:
    If NAT is not desired, disable "nat-control".  Otherwise, use the "static", "nat" or
"global" command to configure NAT policy for the dropped flow.  For dynamic NAT, ensure
that each "nat" command is paired with at least one "global" command.  Use "show nat" and
"debug pix process" to verify NAT rules.

Syslogs:
    305005, 305006, 305009, 305010, 305011, 305012


------------------------------------------------------------------
Name: nat-rpf-failed
NAT reverse path failed:
    Rejected attempt to connect to a translated host using the translated host's real
address.

Recommendation:
    When not on the same interface as the host undergoing NAT, use the mapped address
instead of the real address to connect to the host. Also, enable the appropriate inspect
command if the application embeds IP address.

Syslogs:
```

```
    305005


------------------------------------------------------------------
Name: nat-cluster-input
NAT invalid input:
    An input value for clustering communication contains an unexpected or invalid value.
Recommendation:
    This could be an internal software error.  Contact Cisco Systems.
Syslogs:
    None.


------------------------------------------------------------------
Name: nat-no-xlate-to-pat-pool
NAT no xlate to pat pool:
    No pre-existing xlate found for a connection with a destination matching a mapped
address in a PAT pool.
Recommendation:
    Configure static PAT is access is desired.
Syslogs:
    None.


------------------------------------------------------------------
Name: nat--xlate-create-failed
NAT xlate creation failed:
    Creation of a PAT xlate failed.
Recommendation:
    Check system memory. Configure at least one backup PAT address. Configure a NAT
address to translate non-overload IP address. Only TCP, UDP, ICMP echo, and PPTP GRE
overloadable.
Syslogs:
    None.


------------------------------------------------------------------
Name: cluster-peer-mcast-ignored
Flow matched a cluster peer mcast data traffic classify rule:
    A multicast data packet was received on a L3 cluster interface when it is from a
cluster peer unit corresponding interface. This is a packet flooded back from L3 subnet.
Recommendation:
    This counter is informational and the behavior expected. The packet has been forwarded
out of the cluster and should be ignored by cluster.
Syslogs:
    None.


------------------------------------------------------------------
Name: cluster-dispatch-queue-fail
Cluster failed to enqueue into global dispatch work queue:
    A forwarded data packet failed to enqueue into global dispatch work queue.
Recommendation:
    This could be an internal software error.  Contact Cisco Systems.
Syslogs:
    None.


------------------------------------------------------------------
Name: cluster-dir-flow-create-fail
Cluster director failed to create director flow:
    Director is trying to create a stub flow but failed due to resource     limitation.
The resource limit may be either:
       1) system memory
```

```
       2) packet block extension memory
       3) system connection limit
    Causes 1 and 2 will occur simultaneously with flow drop reason "No     memory to
complete flow".
Recommendation:
    - Observe if free system memory is low.
    - Observe if flow drop reason "No memory to complete flow" occurs.
    - Observe if connection count reaches the system connection limit with     the command
"show resource usage".
Syslogs:
    None


------------------------------------------------------------------
Name: cluster-early-sec-chk-fail
Cluster early security check has failed:
    Director applied early security check has failed due to ACL, WCCP     redirect,
TCP-intercept or IP option.
Recommendation:
    This counter is informational and the behavior expected. The packet will     be
dropped.
Syslogs:
    None.


------------------------------------------------------------------
Name: cluster-queued-ccl-unknown
Cluster CCL unknown stub:
    A queued cluster data packet received over ccl was processed but unit has     unknown
role.
Recommendation:
    None.
Syslogs:
    None.


------------------------------------------------------------------
Name: cluster-dir-nat-changed
Cluster director NAT action changed:
    Cluster director NAT action has changed due to NAT policy change, update     or
expiration before queued ccl data packet can be processed.Recommendation:
    This counter is informational and the behavior expected. The packet will     be
dropped.
Syslogs:
    None.


------------------------------------------------------------------
Name: cluster-dir-invalid-ifc
Cluster director has packet with invalid ingress/egress interface:
    Cluster director has processed a previously queued packet with invalid     ingress
and/or egress interface. This is a result of interface removal     (through CLI) before
the packet can be processed.
Recommendation:
    This counter is informational and the behavior expected. The packet will     be
dropped.
Syslogs:
    None.


------------------------------------------------------------------
Name: cluster-parent-owner-left
Flow removed at bulk sync becasue parent flow is gone:
    Flow is removed during bulk sync because the parent flow's owner has left the cluster.
```

```
Recommendation:
    This counter is informational and the behavior expected.

Syslogs:
    302014


----------------------------------------------------------------
Name: cluster-ctp-punt-channel-missing
Flow removed at bulk sync becasue CTP punt channel is missing:
    Flow is removed during bulk sync because CTP punt channel is missing in cluster
restored flow.

Recommendation:
    The cluster master may have just left the cluster, and there might be packet drops on
the Cluster Control Link.

Syslogs:
    302014


----------------------------------------------------------------
Name: ike-sa-rate-limit
IKE need SA indication per SA rule rate limit exceeded:
     This counter will increment when the appliance attempts to send a message,indicating
that a new SA is needed for a rate-limited control point service routine and the rate
limit (per/second) is now being exceeded. The current rate is one message every two
seconds.

Recommendation:
     This counter is informational and the behavior expected. The packet will be dropped.

Syslogs:
     None


----------------------------------------------------------------
Name: ike-sa-global-rate-limit
IKE new SA global limit exceeded:
     This counter will increment when the appliance attempts to send a message,indicating
that a new SA is needed for a rate-limited control point service routine and the global
rate limit (per/second) is now being exceeded. The current rate is ten messages per
second.

Recommendation:
     This counter is informational and the behavior expected. The packet will be dropped.

Syslogs:
     None


----------------------------------------------------------------
Name: nat-cluster-invalid-unxlate-redirect
Cluster member dropped an invalid NAT untranslate redirect packet from peer:
    Cluster member received a NAT untranslate packet from peer. However this member does
not own the NAT address pool the packet belongs to.

Recommendation:
    This counter is a temporal condition after a cluster member failure. However, if this
counter is incremented continuously, it could be an internal software error. Contact Cisco
TAC in this case.

Syslogs:
```

```
    None.


----------------------------------------------------------------
Name: nat-cluster-pool-update-fail
Cluster master failed to send NAT pool update to slave:
    Cluster master has failed to send NAT pool update to slave unit. This drop will
increase if system resources is low.

Recommendation:
    - Observe if free system memory is low.
    - Observe if "SEC_NAT_SEND_NO_BUFFER" counter is increasing.

Syslogs:
    None.


----------------------------------------------------------------
```

Flow Drop Reasons

```
----------------------------------------------------------------
Name: tunnel-torn-down
Tunnel has been torn down:
    This counter will increment when the appliance receives a packet associated with an
established flow whose IPSec security association is in the process of being deleted.

Recommendation:
    This is a normal condition when the IPSec tunnel is torn down for any reason.

Syslogs:
    None


----------------------------------------------------------------
Name: no-ipv6-ipsec
IPSec over IPv6 unsupported:
    This counter will increment when the appliance receives an IPSec ESP packet, IPSec
NAT-T ESP packet or an IPSec over UDP ESP packet encapsulated in an IP version 6 header.
The appliance does not currently support any IPSec sessions encapsulated in IP version 6.

Recommendation:
    None

Syslogs:
    None


----------------------------------------------------------------
Name: tunnel-pending
Tunnel being brought up or torn down:
    This counter will increment when the appliance receives a packet matching an entry in
the security policy database (i.e. crypto map) but the security association is in the
process of being negotiated; it’s not complete yet.

    This counter will also increment when the appliance receives a packet matching an
entry in the security policy database but the security association has been or is in the
process of being deleted. The difference between this indication and the 'Tunnel has been
torn down' indication is that the 'Tunnel has been torn down' indication is for
established flows.

Recommendation:
```

```
    This is a normal condition when the IPSec tunnel is in the process of being negotiated
or deleted.

Syslogs:
    None


------------------------------------------------------------------
Name: need-ike
Need to start IKE negotiation:
    This counter will increment when the appliance receives a packet which requires
encryption but has no established IPSec security association. This is generally a normal
condition for LAN-to-LAN IPSec configurations. This indication will cause the appliance to
begin ISAKMP negotiations  with the destination peer.

Recommendation:
    If you have configured IPSec LAN-to-LAN on your appliance, this indication is normal
and does not indicate a problem.  However, if this counter increments rapidly it may
indicate a crypto configuration error or network error preventing the ISAKMP negotiation
from completing.

    Verify that you can communicate with the destination peer and verify your crypto
configuration via the 'show running-config' command.

Syslogs:
    None


------------------------------------------------------------------
Name: vpn-handle-error
VPN handle error:
    This counter is incremented when the appliance is unable to create a VPN handle
because the VPN handle already exists.

Recommendation:
    It is possible to see this counter increment as part of normal operation. However, if
the counter is rapidly incrementing and there is a major malfunction of vpn-based
applications, then this may be caused by a software defect. Use the following command sto
gather more information about this counter and ontact the Cisco TAC to investigate the
issue further.

    capture <name> type asp-drop vpn-handle-error
    show asp table classify crypto
    show asp table vpn-context detail

Syslogs:
    None


------------------------------------------------------------------
Name: vpn-handle-not-found
VPN handle not found:
    This counter is incremented when a datagram hits an encrypt or decrypt rule, and no
VPN handle is found for the flow the datagram is on.

Recommendation:
    It is possible to see this counter increment as part of normal operation. However, if
the counter is rapidly incrementing and there is a major malfunction of vpn-based
applications, then this may be caused by a software defect. Use the following command sto
gather more information about this counter and ontact the Cisco TAC to investigate the
issue further.

    capture <name> type asp-drop vpn-handle-not-found
    show asp table classify crypto
```

```
    show asp table vpn-context detail

Syslogs:
    None


------------------------------------------------------------------
Name: ipsec-spoof-detect
IPSec spoof packet detected:
    This counter will increment when the appliance receives a packet which should have
been encrypted but was not.  The packet matched the inner header security policy check of
a configured and established IPSec connection on the appliance but was received
unencrypted.  This is a security issue.

Recommendation:
    Analyze your network traffic to determine the source of the spoofed IPSec traffic.

Syslogs:
    402117


------------------------------------------------------------------
Name: svc-spoof-detect
SVC spoof packet detected:
    This counter will increment when the security appliance receives a packet which should
have been encrypted but was not. The packet matched the inner header security policy check
of a configured and established SVC connection on the security appliance but was received
unencrypted. This is a security issue.

Recommendation:
    Analyze your network traffic to determine the source of the spoofed SVC traffic.

Syslogs:
    None


------------------------------------------------------------------
Name: svc-failover
An SVC socket connection is being disconnected on the standby unit:
    This counter is incremented for each new SVC socket connection that is disconnected
when the active unit is transitioning into standby state as part of a failover transition.

Recommendation:
    None. This is part of a normal cleanup of a SVC connection when the current device is
transitioning from active to standby. Existing SVC connections on the device are no longer
valid and need to be removed.

Syslogs:
    None.


------------------------------------------------------------------
Name: svc-replacement-conn
SVC replacement connection established:
    This counter is incremented when an SVC connection is replaced by a new connection.

Recommendation:
    None. This may indicate that users are having difficulty maintaining connections to
the ASA. Users should evaluate the quality of their home network and Internet connection.

Syslog:
    722032
```

```
-------------------------------------------------------------
Name: ipsec-selector-failure
IPSec VPN inner policy selector mismatch detected:
    This counter is incremented when an IPSec packet is received with an inner IP header
that does not match the configured policy for the tunnel.

 Recommendation:
    Verify that the crypto ACLs for the tunnel are correct and that all acceptable packets
are included in the tunnel identity.  Verify that the box is not under attack if this
message is repeatedly seen.

 Syslogs:
    402116


-------------------------------------------------------------
Name: vpn-context-expired
Expired VPN context:
    This counter will increment when the security appliance receives a packet that
requires encryption or decryption, and the ASP VPN context required to perform the
operation is no longer valid.

 Recommendation:
    This indicates that a software error should be reported to the Cisco TAC.

 Syslogs:
    None


-------------------------------------------------------------
Name: vpn-lock-error
IPSec locking error:
    This counter is incremented when VPN flow cannot be created due to an internal locking
error.

Recommendation:
    This condition should never be encountered during normal operation and may indicate a
software problem with the appliance. Contact the Cisco Technical Assistance Center (TAC)
if this error occurs.

Syslogs:
    None.


-------------------------------------------------------------
Name: out-of-memory
No memory to complete flow:
    This counter is incremented when the appliance is unable to create a flow because of
insufficient memory.

Recommendation:
    Verify that the box is not under attack by checking the current connections. Also
verify if the configured timeout values are too large resulting in idle flows residing in
memory longer. Check the free memory available by issuing 'show memory'.  If free memory
is low, issue the command 'show processes memory' to determine which processes are
utilizing most of the memory.

Syslogs:
    None


-------------------------------------------------------------
Name: parent-closed
Parent flow is closed:
```

```
    When the parent flow of a subordinating flow is closed, the subordinating flow is also
closed.  For example, an FTP data flow (subordinating flow) will be closed with this
specific reason when its control flow (parent flow) is terminated.  This reason is also
given when a secondary flow (pin-hole) is closed by its controlling application.  For
example, when the BYE messaged is received, the SIP inspection engine (controlling
application) will close the corresponding SIP RTP flows (secondary flow).

Recommendation:
    None.

Syslogs:
    None.


----------------------------------------------------------------
Name: closed-by-inspection
Flow closed by inspection:
    This reason is given for closing a flow due to an error detected during application
inspection.  For example, if an error is detected during inspecting an H323 message, the
corresponding H323 flow is closed with this reason.

Recommendation:
    None.

Syslogs:
    None.


----------------------------------------------------------------
Name: fo-primary-closed
Failover primary closed:
    Standby unit received a flow delete message from the active unit and terminated the
flow.

Recommendation:
    If the appliance is running stateful failover, then this counter should increment for
every replicated connection that is torn down on the standby appliance.

Syslogs:
    302014, 302016, 302018


----------------------------------------------------------------
Name: fo-standby
Flow closed by failover standby:
    If a through-the-box packet arrives at an appliance or context is in a Standby state,
and a flow is created, the packet is dropped and the flow removed. This counter will
increment each time a flow is removed in this manner.

Recommendation:
    This counter should never be incrementing on the Active appliance or context. However,
it is normal to see it increment on the Standby appliance or context.

Syslogs:
    302014, 302016, 302018


----------------------------------------------------------------
Name: fo_rep_err
Standby flow replication error:
    Standby unit failed to replicate a flow.

Recommendation:
```

```
    If appliance is processing VPN traffic, then this counter could be constantly
increasing on the standby unit because of the flow could be replicated before the IKE SA
info. No action is required in this case. If the appliance is not processing VPN traffic,
then this indicate a software detect, turn on the debug: "debug fover fail" on the standby
unit, collect the debug output, and report the problem to Cisco TAC.

Syslogs:
    302014, 302016, 302018


----------------------------------------------------------------
Name: loopback
Flow is a loopback:
    This reason is given for closing a flow due to the following conditions: 1) when
U-turn traffic is present on the flow, and, 2) 'same-security-traffic permit
intra-interface' is not configured.

Recommendation:
    To allow U-turn traffic on an interface, configure the interface with
'same-security-traffic permit intra-interface'.

Syslogs:
    None.


----------------------------------------------------------------
Name: acl-drop
Flow is denied by access rule:
     This counter is incremented when a drop rule is hit by the packet and flow creation
is denied. This rule could be a default rule created when the box comes up, when various
features are turned on or off, when an acl is applied to interface or any other feature
etc. Apart from default rule drops, a flow could be denied because of:
     1) ACL configured on an interface
     2) ACL configured for AAA and AAA denied the user
     3) Thru-box traffic arriving at management-only ifc
     4) Unencrypted traffic arriving on a ipsec-enabled interface
     5) Implicity deny 'ip any any' at the end of an ACL

Recommendation:
    Observe if one of syslogs related to packet drop are fired. Flow drop results in the
corresponding packet-drop that would fire requisite syslog.

Syslogs:
    None.


----------------------------------------------------------------
Name: pinhole-timeout
Pinhole timeout:
    This counter is incremented to report that the appliance opened a secondary flow, but
no packets passed through this flow within the timeout interval, and hence it was removed.
An example of a secondary flow is the FTP data channel that is created after successful
negotiation on the FTP control channel.

Recommendation:
    No action required.

Syslogs:
    302014, 302016


----------------------------------------------------------------
Name: host-removed
Host is removed:
```

```
    Flow removed in response to "clear local-host" command.

Recommendation:
    This is an information counter.

Syslogs:
    302014, 302016, 302018, 302021, 305010, 305012, 609002


----------------------------------------------------------------
Name: xlate-removed
Xlate Clear:
    Flow removed in response to "clear xlate" or "clear local-host" command.

Recommendation:
    This is an information counter.

Syslogs:
    302014, 302016, 302018, 302021, 305010, 305012, 609002


----------------------------------------------------------------
Name: connection-timeout
Connection timeout:
    This counter is incremented when a flow is closed because of the expiration of it's
inactivity timer.

Recommendation:
    No action required.

Syslogs:
    302014, 302016, 302018, 302021


----------------------------------------------------------------
Name: conn-limit-exceeded
Connection limit exceeded:
    This reason is given for closing a flow when the connection limit has been exceeded.
The connection limit is configured via the 'set connection conn-max' action command.

Recommendation:
    None.

Syslogs:
    201011


----------------------------------------------------------------
Name: tcp-fins
TCP FINs:
    This reason is given for closing a TCP flow when TCP FIN packets are received.

Recommendations:
    This counter will increment for each TCP connection that is terminated normally with
FINs.

Syslogs:
    302014


----------------------------------------------------------------
Name: syn-timeout
SYN Timeout:
    This reason is given for closing a TCP flow due to expiry of embryonic timer.
```

```
Recommendations:
    If these are valid session which take longer to establish a connection increase the
embryonic timeout.

Syslogs:
    302014


----------------------------------------------------------------
Name: fin-timeout
FIN Timeout:
    This reason is given for closing a TCP flow due to expiry of half-closed timer.

Recommendations:
    If these are valid session which take longer to close a TCP flow, increase the
half-closed timeout.

Syslogs:
    302014


----------------------------------------------------------------
Name: reset-in
TCP Reset-I:
    This reason is given for closing an outbound flow (from a low-security interface to a
same- or high-security interface) when a TCP reset is received on the flow.

Recommendation:
    None.

Syslogs:
    302014


----------------------------------------------------------------
Name: reset-out
TCP Reset-O:
    This reason is given for closing an inbound flow (from a high-security interface to
low-security interface) when a TCP reset is received on the flow.

Recommendation:
    None.

Syslogs:
    302014


----------------------------------------------------------------
Name: reset-appliance
TCP Reset-APPLIANCE:
    This reason is given for closing a flow when a TCP reset is generated by appliance.

Recommendation:
    None.

Syslogs:
    302014


----------------------------------------------------------------
Name: recurse
Close recursive flow:
```

```
    A flow was recursively freed. This reason applies to pair flows, multicast slave
flows, and syslog flows to prevent syslogs being issued for each of these subordinate
flows.

Recommendation:
    No action required.

Syslogs:
    None


----------------------------------------------------------------
Name: tcp-intecept-no-response
TCP intercept, no response from server:
    SYN retransmission timeout after trying three times, once every second. Server
unreachable, tearing down connection.

Recommendation:
    Check if the server is reachable from the ASA.

Syslogs:
    None


----------------------------------------------------------------
Name: tcp-intercept-unexpected
TCP intercept unexpected state:
    Logic error in TCP intercept module, this should never happen.

Recommendation:
    Indicates memory corruption or some other logic error in the TCP intercept module.

Syslogs:
    None


----------------------------------------------------------------
Name: tcpnorm-rexmit-bad
TCP bad retransmission:
    This reason is given for closing a TCP flow when check-retranmission feature is
enabled and the TCP endpoint sent a retranmission with different data from the original
packet.

Recommendations:
    The TCP endpoint maybe attacking by sending different data in TCP retransmits. Please
use the packet capture feature to learn more about the origin of the packet.

Syslogs:
    302014


----------------------------------------------------------------
Name: tcpnorm-win-variation
TCP unexpected window size variation:
    This reason is given for closing a TCP flow when window size advertized by TCP
endpoint is drastically changed without accepting that much data.

Recommendations:
    In order to allow this connection, use the window-variation configuration under
tcp-map.

Syslogs:
    302014
```

```
----------------------------------------------------------------
Name: tcpnorm-invalid-syn
TCP invalid SYN:
    This reason is given for closing a TCP flow when the SYN packet is invalid.

Recommendations:
    SYN packet could be invalid for number of reasons, like invalid checksum, invalid TCP
header. Please use the packet capture feature to understand why the SYN packet is invalid.
If you would like to allow these connection use tcp-map configurations to bypass checks.

Syslogs:
    302014


----------------------------------------------------------------
Name: mcast-intrf-removed
Multicast interface removed:
    An output interface has been removed from the multicast entry.
    - OR -
    All output interfaces have been removed from the multicast entry.

Recommendation:
    No action required.
    - OR -
    Verify that there are no longer any receivers for this group.

Syslogs:
    None


----------------------------------------------------------------
Name: mcast-entry-removed
Multicast entry removed:
    A packet has arrived that matches a multicast flow, but the multicast service is no
longer enabled, or was re-enabled after the flow was built.
    - OR -
    The multicast entry has been deleted so the flow is being cleaned up, but the packet
will be reinjected into the data path.

Recommendation:
    Reenable multicast if it is disabled.
    - OR -
    No action required.

Syslogs:
    None


----------------------------------------------------------------
Name: tcp-intercept-kill
Flow terminated by TCP Intercept:
    TCP intercept would teardown a connection if this is the first SYN, a connection is
created for the SYN, and TCP intercept replied with a SYN cookie, or after seeing a valid
ACK from client, when TCP intercept sends a SYN to server, server replies with a RST.

Recommendation:
    TCP intercept normally does not create a connection for first SYN, except when there
are nailed rules or the packet comes over a VPN tunnel or the next hop gateway address to
reach the client is not resolved. So for the first SYN this indicates that a connection
got created. When TCP intercept receives a RST from server, its likely the corresponding
port is closed on the server.

Syslogs:
```

```
    None


-----------------------------------------------------------------
Name: audit-failure
Audit failure:
    A flow was freed after matching an "ip audit" signature that had reset as the
associated action.

Recommendation:
    If removing the flow is not the desired outcome of matching this signature, then
remove the reset action from the "ip audit" command.

Syslogs:
    None


-----------------------------------------------------------------
Name: cxsc-request
Flow terminated by CXSC:
    This reason is given for terminating a flow as requested by CXSC module.

Recommendations:
    Check syslogs and alerts on CXSC module.

Syslogs:
    429002


-----------------------------------------------------------------
Name: cxsc-fail-close
CXSC fail-close:
    This reason is given for terminating a flow since CXSC card is down and fail-close
option was used with CXSC action.

Recommendations:
    Check and bring up CXSC card.

Syslogs:
    429001


-----------------------------------------------------------------
Name: reset-by-cx
Flow reset by CXSC:
    This reason is given for terminating a TCP flow as requested by the CXSC module.

Recommendations:
    Check syslogs and alerts on CXSC module.

Syslogs:
    429003


-----------------------------------------------------------------
Name: ips-request
Flow terminated by IPS:
    This reason is given for terminating a flow as requested by IPS module.

Recommendations:
    Check syslogs and alerts on IPS module.

Syslogs:
    420002
```

```
------------------------------------------------------------------
Name: cxsc-request
CXSC Module requested drop:
    This counter is incremented and the packet is dropped as requested by the CXSC module
when the packet matches a signature on the CXSC engine.

Recommendations:
    Check syslogs and alerts on the CXSC module.

Syslogs:
    429002


------------------------------------------------------------------
Name: cxsc-bad-tlv-received
CXSC Module requested drop:
    This counter is incremented and the packet is dropped as requested by the CXSC module
when the packet has bad TLVs.

Recommendations:
    Check syslogs and alerts on the CXSC module.
Syslogs:
    None


------------------------------------------------------------------
Name: cxsc-malformed-packet
CXSC Module requested drop:
    This counter is incremented and the packet is dropped as requested by the CXSC module
when the packet is malformed.

Recommendations:
    Check syslogs and alerts on the CXSC module.

Syslogs:
    None


------------------------------------------------------------------
Name: cxsc-fail
CXSC config removed for connection:
    This counter is incremented and the packet is dropped when the CXSC configuration is
not found for a particular connection.

Recommendations:
    Check if any configuration changes have been made for CXSC.

Syslogs:
    None


------------------------------------------------------------------
Name: cxsc-ha-request
CXSC HA replication drop:
    This counter is incremented when the security appliance receives a CXSC HA request
packet, but could not process it and the packet is dropped.

Recommendation:
    This could happen occasionally when CXSC does not have the latest ASA HA state, such
as right after an ASA HA state change. If the counter is constantly increasing however, it
may be because CXSC and ASA are out of sync. If that happens, contact Cisco TAC for
assistance.
```

```
Syslogs:
    None.


-----------------------------------------------------------------
Name: cxsc-invalid-encap
CXSC invalid header drop:
    This counter is incremented when the security appliance receives a CXSC packet with an
invalid messsage header, and the packet is dropped.

Recommendation: This should not happen. Contact Cisco TAC for assistance.

Syslogs:
    None.


-----------------------------------------------------------------
Name: ips-fail-close
IPS fail-close:
    This reason is given for terminating a flow since IPS card is down and fail-close
option was used with IPS inspection.

Recommendations:
    Check and bring up IPS card.

Syslogs:
    420001


-----------------------------------------------------------------
Name: reinject-punt
Flow terminated by punt action:
    This counter is incremented when a packet is punted to the exception-path for
processing by one of the enhanced services such as inspect, aaa etc and the servicing
routine, having detected a violation in the traffic flowing on the flow, requests that the
flow be dropped. The flow is immediately dropped.

Recommendation:
    Please watch for syslogs fired by servicing routine for more information. Flow drop
terminates the corresponding connection.

Syslogs:
    None.


-----------------------------------------------------------------
Name: shunned
Flow shunned:
    This counter will increment when a packet is received which has a source IP address
that matches a host in the shun database.  When a shun command is applied, it will be
incremented for each existing flow that matches the shun command.

Recommendation:
    No action required.

Syslogs:
    401004


-----------------------------------------------------------------
Name: host-limit
host-limit
```

```
---------------------------------------------------------------
Name: nat-failed
NAT failed:
    Failed to create an xlate to translate an IP or transport header.

Recommendation:
    If NAT is not desired, disable "nat-control".  Otherwise, use the "static", "nat" or
"global" command to configure NAT policy for the dropped flow.  For dynamic NAT, ensure
that each "nat" command is paired with at least one "global" command.  Use "show nat" and
"debug pix process" to verify NAT rules.

Syslogs:
    305005, 305006, 305009, 305010, 305011, 305012


---------------------------------------------------------------
Name: nat-rpf-failed
NAT reverse path failed:
    Rejected attempt to connect to a translated host using the translated host's real
address.

Recommendation:
    When not on the same interface as the host undergoing NAT, use the mapped address
instead of the real address to connect to the host. Also, enable the appropriate inspect
command if the application embeds IP address.

Syslogs:
    305005


---------------------------------------------------------------
Name: inspect-fail
Inspection failure:
    This counter will increment when the appliance fails to enable protocol inspection
carried out by the NP for the connection. The cause could be memory allocation failure, or
for ICMP error message, the appliance not being able to find any established connection
related to the frame embedded in the ICMP error message.

Recommendation:
    Check system memory usage.  For ICMP error message, if the cause is an attack, you can
deny the host using the ACLs.

Syslogs:
    313004 for ICMP error.


---------------------------------------------------------------
Name: no-inspect
Failed to allocate inspection:
    This counter will increment when the security appliance fails to allocate a run-time
inspection data structure upon connection creation. The connection will be dropped.

Recommendation:
    This error condition is caused when the security appliance runs out of system memory.
Please check the current available free memory by executing the "show memory" command.

Syslogs:
    None


---------------------------------------------------------------
Name: reset-by-ips
Flow reset by IPS:
    This reason is given for terminating a TCP flow as requested by IPS module.
```

```
Recommendations:
    Check syslogs and alerts on IPS module.

Syslogs:
    420003


------------------------------------------------------------------
Name: flow-reclaimed
Non-tcp/udp flow reclaimed for new request:
    This counter is incremented when a reclaimable flow is removed to make room for a new
flow.  This occurs only when the number of flows through the appliance equals the maximum
number permitted by the software imposed limit, and a new flow request is received. When
this occurs, if the number of reclaimable flows exceeds the number of VPN tunnels
permitted by the appliance, then the oldest reclaimable flow is removed to make room for
the new flow.  All flows except the following are deemed to be reclaimable:
    1. TCP, UDP, GRE and Failover flows
    2. ICMP flows if ICMP stateful inspection is enabled
    3. ESP flows to the appliance

Recommendation:
    No action is required if this counter is incrementing slowly. If this counter is
incrementing rapidly, it could mean that the appliance is under attack and the appliance
is spending more time reclaiming and rebuilding flows.

Syslogs
    302021


------------------------------------------------------------------
Name: non_tcp_syn
non-syn TCP:
    This reason is given for terminating a TCP flow when the first packet is not a SYN
packet.

Recommendations:
    None

Syslogs:
    None


------------------------------------------------------------------
Name: rm-xlate-limit
RM xlate limit reached:
    This counter is incremented when the maximum number of xlates for a context or the
system has been reached and a new connection is attempted.

 Recommendation:
    The device administrator can use the commands 'show resource usage' and 'show resource
usage system' to view context and system resource limits and 'Denied' counts and adjust
resource limits if desired.

 Syslogs:
    321001


------------------------------------------------------------------
Name: rm-host-limit
RM host limit reached:
    This counter is incremented when the maximum number of hosts for a context or the
system has been reached and a new connection is attempted.
```

```
 Recommendation:
    The device administrator can use the commands 'show resource usage' and 'show resource
usage system' to view context and system resource limits and 'Denied' counts and adjust
resource limits if desired.

 Syslogs:
    321001


----------------------------------------------------------------
Name: rm-inspect-rate-limit
RM inspect rate limit reached:
    This counter is incremented when the maximum inspection rate for a context or the
system has been reached and a new connection is attempted.

 Recommendation:
    The device administrator can use the commands 'show resource usage' and 'show resource
usage system' to view context and system resource limits and 'Denied' counts and adjust
resource limits if desired.

 Syslogs:
    321002


----------------------------------------------------------------
Name: tcpmod-connect-clash
A TCP connect socket clashes with an existing listen connection. This is an internal
system error.  Contact TAC.

----------------------------------------------------------------
Name: ssm-app-request
Flow terminated by service module:
    This counter only applies to the ASA 5500 series adaptive security appliance. It is
incremented when the application running on the SSM requests the security appliance to
terminate a connection.

Recommendation:
    You can obtain more information by querying the incident report or system messages
generated by the SSM itself. Please consult the documentation that comes with comes with
the SSM for instructions.

Syslogs:
    None.


----------------------------------------------------------------
Name: ssm-app-fail
Service module failed:
    This counter only applies to the ASA 5500 series adaptive security appliance. It is
incremented when a connection that is being inspected by the SSM is terminated because the
SSM has failed.

Recommendation:
    The card manager process running in the security appliance control plane issued system
messages and CLI warning to inform you of the failure. Please consult the documentation
that comes with the SSM to trouble shoot the SSM failure. Contact Cisco Technical
Assistance Center (TAC) if needed.

Syslog:
    421001.


----------------------------------------------------------------
Name: ssm-app-incompetent
```

```
Service module incompetent:
    This counter only applies to the ASA 5500 series adaptive security appliance. It is
incremented when a connection is supposed to be inspected by the SSM, but the SSM is not
able to inspect it. This counter is reserved for future use. It should always be 0 in the
current release.

Recommendation:
    None.

Syslog:
    None.


----------------------------------------------------------------
Name: ssl-bad-record-detect
SSL bad record detected:
    This counter is incremented for each unknown SSL record type received from the remote
peer. Any unknown record type received from the peer is treated as a fatal error and the
SSL connections that encounter this error must be terminated.

Recommendation:
    It is not normal to see this counter increment at any time. If this counter is
incremented, it usually means that the SSL protocol state is out of sync with the client
software. The most likely cause of this problem is a software defect in the client
software. Contact the Cisco TAC with the client software or web browser version and
provide a network trace of the SSL data exchange to troubleshoot this problem.

Syslogs:
    None.


----------------------------------------------------------------
Name: ssl-handshake-failed
SSL handshake failed:
    This counter is incremented when the TCP connection is dropped because the SSL
handshake failed.

Recommendation:
    This is to indicate that the TCP connection is dropped because the SSL handshake
failed. If the problem cannot be resolved based on the syslog information generated by the
handshake failure condition, please include the related syslog information when contacting
the Cisco TAC.

Syslogs:
    725006.
    725014.


----------------------------------------------------------------
Name: ssl-malloc-error
SSL malloc error:
    This counter is incremented for each malloc failure that occurs in the SSL lib. This
is to indicate that SSL encountered a low memory condition where it can't allocate a
memory buffer or packet block.

Recommendation:
    Check the security appliance memory and packet block condition and contact Cisco the
TAC with this memory information.

Syslogs:
    None.


----------------------------------------------------------------
```

```
Name: ctm-crypto-request-error
CTM crypto request error:
    This counter is incremented each time CTM cannot accept our crypto request. This
usually means the crypto hardware request queue is full.

Recommendation:
    Issue the show crypto protocol statistics ssl command and contact the Cisco TAC with
this information.

Syslogs:
    None.


----------------------------------------------------------------
Name: ssl-record-decrypt-error
SSL record decryption failed:
    This counter is incremented when a decryption error occurs during SSL data receive.
This usually means that there is a bug in the SSL code of the ASA or peer, or an attacker
may be modifying the data stream. The SSL connection has been closed.

Recommendation:
    Investigate the SSL data streams to and from your ASA. If there is no attacker, then
this indicates a software error that should be reported to the Cisco TAC.

Syslogs:
    None.


----------------------------------------------------------------
Name: np-socket-conn-not-accepted
A new socket connection was not accepted:
    This counter is incremented for each new socket connection that is not accepted by the
security appliance.

Recommendation:
    It is possible to see this counter increment as part of normal operation. However, if
the counter is rapidly incrementing and there is a major malfunction of socket-based
applications, then this may be caused by a software defect. Contact the Cisco TAC to
investigate the issue further.

Syslog:
    None.


----------------------------------------------------------------
Name: np-socket-failure
NP socket failure:
    This is a general counter for critical socket processing errors.

Recommendation:
    This indicates that a software error should be reported to the Cisco TAC.

Syslog:
    None.


----------------------------------------------------------------
Name: np-socket-relay-failure
NP socket relay failure:
    This is a general counter for socket relay processing errors.

Recommendation:
```

```
    It is possible to see this counter increment as part of normal operation. However, if
the counter is rapidly incrementing and there is a major malfunction of socket-based
applications, then this may be caused by a software defect. Contact the Cisco TAC to
investigate the issue further.

Syslog:
    None.


----------------------------------------------------------------
Name: np-socket-data-move-failure
NP socket data movement failure:
    This counter is incremented for socket data movement errors.

Recommendation:
    This indicates that a software error should be reported to the Cisco TAC.

Syslog:
    None.


----------------------------------------------------------------
Name: np-socket-new-conn-failure
NP socket new connection failure:
    This counter is incremented for new socket connection failures.

Recommendation:
    This indicates that a software error should be reported to the Cisco TAC.

Syslog:
    None.


----------------------------------------------------------------
Name: np-socket-transport-closed
NP socket transport closed:
    This counter is incremented when the transport attached to the socket is abruptly
closed.

Recommendation:
    It is possible to see this counter increment as part of normal operation. However, if
the counter is rapidly incrementing and there is a major malfunction of socket-based
applications, then this may be caused by a software defect. Contact the Cisco TAC to
investigate the issue further.

Syslog:
    None.


----------------------------------------------------------------
Name: np-socket-block-conv-failure
NP socket block conversion failure:
    This counter is incremented for socket block conversion failures.

Recommendation:
    This indicates that a software error should be reported to the Cisco TAC.

Syslog:
    None.


----------------------------------------------------------------
Name: ssl-received-close-alert
SSL received close alert:
```

```
    This counter is incremented each time the security appliance receives a close alert
from the remote client. This indicates that the client has notified us they are going to
drop the connection. It is part of the normal disconnect process.

Recommendation:
    None.

Syslog:
    725007.


----------------------------------------------------------------
Name: children-limit
Max per-flow children limit exceeded:
    The number of children flows associated with one parent flow exceeds the internal
limit of 200.

Recommendation:
    This message indicates either a misbehaving application or an active attempt to
exhaust the firewall memory. Use "set connection per-client-max" command to further fine
tune the limit. For FTP, additionally enable the "strict" option in "inspect ftp".

Syslogs:
    210005


----------------------------------------------------------------
Name: tracer-flow
packet-tracer traced flow drop:
    This counter is internally used by packet-tracer for flow freed once tracing is
complete.

Recommendation:
    None.

Syslog:
    None.


----------------------------------------------------------------
Name: sp-looping-address
looping-address:
    This counter is incremented when the source and destination addresses in a flow are
the same. SIP flows where address privacy is enabled are excluded, as it is normal for
those flows to have the same source and destination address.

 Recommendation:
    There are two possible conditions when this counter will increment. One is when the
appliance receives a packet with the source address equal to the destination. This
represents a type of DoS attack.  The second is when the NAT configuration of the
appliance NATs a source address to equal that of the destination.  One should examine
syslog message 106017 to determine what IP address is causing the counter to increment,
then enable packet captures to capture the offending packet, and perform additional
analysis.

 Syslogs:
    106017


----------------------------------------------------------------
Name: no-adjacency
No valid adjacency:
```

```
    This counter will increment when the security appliance receives a packet on an
existing flow that no longer has a valid output adjacency. This can occur if the nexthop
is no longer reachable or if a routing change has occurred typically in a dynamic routing
environment.

 Recommendation:
    No action required.

 Syslogs:
    None


------------------------------------------------------------------
Name: np-midpath-service-failure
NP midpath service failure:
    This is a general counter for critical midpath service errors.

Recommendation:
    This indicates that a software error should be reported to the Cisco TAC.

Syslog:
    None.


------------------------------------------------------------------
Name: np-midpath-cp-event-failure
NP midpath CP event failure:
    This is counter for critical midpath events that could not be sent to the CP.

Recommendation:
    This indicates that a software error should be reported to the Cisco TAC.

Syslog:
    None.


------------------------------------------------------------------
Name: np-context-removed
NP virtual context removed:
    This counter is incremented when the virtual context with which the flow is going to
be associated has been removed. This could happen in multi-core environment when one CPU
core is in the process of destroying the virtual context, and another CPU core tries to
create a flow in the context.

Recommendation:
    No action is required.

Syslog:
    None.


------------------------------------------------------------------
Name: fover-idle-timeout
Flow removed from standby unit due to idle timeout:
    A flow is considered idle if standby unit no longer receives periodical update from
active which is supposed to happen to at fixed internal when flow is alive. This counter
is incremented when such flow is removed from standby unit.

Recommendation:
    This counter is informational.

Syslogs:
    None.
```

```
------------------------------------------------------------------
Name: dynamic-filter
Flow matched dynamic-filter blacklist:
    A flow matched a dynamic-filter blacklist or greylist entry with a threat-level higher
than the threat-level threshold configured to drop traffic.

Recommendation:
    Use the internal IP address to trace the infected host. Take remediation steps to
remove the infection.

Syslogs:
    None.


------------------------------------------------------------------

Name: route-change
Flow terminated due to route change:
    When the system adds a lower cost (better metric) route, incoming packets that match
the new route will cause their existing connection to be torn down after the user
configured timeout (floating-conn) value. Subsequent packets will rebuild the connection
out the interface with the better metric.

Recommendation:
    To prevent the addition of lower cost routes from affecting active flows, the
'floating-conn' configuration timeout value can be set to 0:0:0.

Syslogs:
    None.


------------------------------------------------------------------
Name: svc-selector-failure
SVC VPN inner policy selector mismatch detected:
    This counter is incremented when an SVC packet is received with an inner IP header
that does not match the policy for the tunnel.

 Recommendation:
    None. This packet will be discarded automatically.

 Syslogs:
    None.


------------------------------------------------------------------
Name: dtls-hello-close
DTLS hello processed and closed:
     This counter is incremented when the UDP connection is dropped after the DTLS client
hello message processing is finished. This does not indicate an error.

Recommendation:
None.

 Syslogs:
    None.


------------------------------------------------------------------
Name: svc-conn-timer-cb-fail
SVC connection timer callback failure:
    This condition occurs when there is a failed attempt to place an event on the async
lock queue for that connection.
```

```
 Recommendation:
    None.

 Syslogs:
    None.


-----------------------------------------------------------------
Name: svc-udp-conn-timer-cb-fail
SVC UDP connection timer callback failure:
    This condition occurs when there is a failed attempt to place an event on the async
lock queue for that connection.

 Recommendation:
    None.

 Syslogs:
    None.


-----------------------------------------------------------------
Name: nat64/46-conversion-fail
IPv6 to IPv4 or vice-versa conversion failure:
    This condition occurs when there is a failure in coversion of IPv6 traffic to IPv4 or
vice-versa.

 Recommendation:
    None.

 Syslogs:
    None.


-----------------------------------------------------------------
Name: cluster-cflow-clu-closed
Cluster flow with CLU closed on owner:
    Director/backup unit received a cluster flow clu delete message from the owner unit
and terminated the flow.

Recommendation:
    This counter should increment for every replicated clu that is torn down on the owner
unit.

Syslogs:
    None.


-----------------------------------------------------------------
Name: cluster-cflow-clu-timeout
Cluster flow with CLU removed from due to idle timeout:
    A cluster flow with CLU is considered idle if director/backup unit no longer receives
periodical update from owner which is supposed to happen at fixed interval when flow is
alive.

Recommendation:
    This counter is informational.

Syslogs:
    None.


-----------------------------------------------------------------
Name: cluster-redirect
Flow matched a cluster redirect classify rule:
```

```
    A stub forwarding flow will thereafter forward packets to the cluster unit that owns
the flow.

Recommendations:
    This counter is informational and the behavior expected. The packet was forwarded to
the owner over the Cluster Control Link.

Syslogs:
    None.


----------------------------------------------------------------
Name: cluster-drop-on-slave
Flow matched a cluster drop-on-slave classify rule:
    This is for cases that the packets from L3 subnet are seen by all units and only
master unit need to process them.

Recommendations:
    This counter is informational and the behavior expected. The packet is processed by
master.

Syslogs:
    None.


----------------------------------------------------------------
Name: cluster-director-change
The flow director changed due to a cluster join event:
    A new unit joined the cluster and is now the director for the flow. The old
director/backup has removed it's flow and the flow owner will update the new director.

Recommendations:
    This counter is informational and the behavior expected.

Syslogs:
    None.


----------------------------------------------------------------
Name: cluster-mcast-owner-change
The multicast flow owner changed due to a cluster join or leave event:
     This flow gets created on a new owner unit.

Recommendations:
    This counter is informational and the behavior expected.

Syslogs:
    None.


----------------------------------------------------------------
Name: cluster-convert-to-dirbak
Forwarding or redirect flow converted to director or backup flow:
    Forwarding or redirect flow is removed, so that director or backup flow can be
created.

Recommendations:
    This counter is informational and the behavior expected.

Syslogs:
    None.


----------------------------------------------------------------
```

```
Name: inspect-scansafe-server-not-reachable
Scansafe server is not configured or the cloud is down:
    Either the scansafe server IP is not specified in the scansafe general options or the
scansafe server is not reachable.

Recommendations:
    This counter is informational and the behavior expected.

Syslogs:
    None.


----------------------------------------------------------------
Name: cluster-director-closed
Flow removed due to director flow closed:
    Owner unit received a cluster flow clu delete message from the director unit and
terminated the flow.

Recommendation:
    This counter should increment for every replicated clu that is torn down on the
director unit.

Syslogs:
    None.


----------------------------------------------------------------
Name: cluster-pinhole-master-change
Master only pinhole flow removed at bulk sync due to master change:
    Master only pinhole flow is removed during bulk sync because cluster master has
changed.

Recommendation:
    This counter is informational and the behavior expected.

Syslogs:
    302014


----------------------------------------------------------------
Name: cluster-parent-owner-left
Flow removed at bulk sync becasue parent flow is gone:
    Flow is removed during bulk sync becasue the parent flow's owner has left the cluster.

Recommendation:
    This counter is informational and the behavior expected.

Syslogs:
    302014


----------------------------------------------------------------
Name: cluster-ctp-punt-channel-missing
Flow removed at bulk sync becasue CTP punt channel is missing:
    Flow is removed during bulk sync because CTP punt channel is missing in cluster
restored flow.

Recommendation:
    The cluster master may have just left the cluster. And there might be packet drops on
the Cluster Control Link.

Syslogs:
    302014
```

```
------------------------------------------------------------------
Name: vpn-overlap-conflict

VPN Network Overlap Conflict:
When a packet is decrypted, the inner packet is examined against the crypto map
configuration.  If the packet matches a different crypto map entry than the one it was
received on, it will be dropped and this counter will increment.  A common cause for this
is two crypto map entries containing similar/overlapping address spaces.

Recommendation:
    Check your VPN configuration for overlapping networks. Verify the
    order of your crypto maps and use of deny rules in ACLs.

Syslogs:
    None


------------------------------------------------------------------
```

Examples

The following is sample output from the **show asp drop** command, with the timestamp indicating the last time the counters were cleared:

```
hostname# show asp drop

Frame drop:
  Flow is denied by configured rule (acl-drop)                           3
  Dst MAC L2 Lookup Failed (dst-l2_lookup-fail)                       4110
  L2 Src/Dst same LAN port (l2_same-lan-port)                          760
  Expired flow (flow-expired)                                            1

Last clearing: Never

Flow drop:
  Flow is denied by access rule (acl-drop)                              24
  NAT failed (nat-failed)                                            28739
  NAT reverse path failed (nat-rpf-failed)                           22266
  Inspection failure (inspect-fail)                                  19433

Last clearing: 17:02:12 UTC Jan 17 2012 by enable_15
```

Related Commands

Command	Description
capture	Captures packets, including the option to capture packets based on an ASP drop code.
clear asp drop	Clears drop statistics for the accelerated security path.
show conn	Shows information about connections.

show asp event dp-cp

To debug the data path or control path event queues, use the **show asp event dp-cp** command in privileged EXEC mode.

show asp event dp-cp [**cxsc msg**]

Syntax Description

cxsc msg	(Optional) Identifies the CXSC event messages that are sent to the CXSC event queue.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
9.0(1)	This command was introduced.
9.1(3)	A routing event queue entry was added.

Usage Guidelines

The **show asp event dp-cp** command shows the contents of the data path and control path, which might help you troubleshoot a problem. See the CLI configuration guide for more information about the data path and control path. These tables are used for debugging purposes only, and the information output is subject to change. Consult Cisco TAC to help you debug your system with this command.

Examples

The following is sample output from the **show asp event dp-cp** command:

```
hostname# show asp event dp-cp

DP-CP EVENT QUEUE                 QUEUE-LEN  HIGH-WATER
Punt Event Queue                          0        2048
Routing Event Queue                       0           1
Identity-Traffic Event Queue              0          17
General Event Queue                       0           0
Syslog Event Queue                        0        3192
Non-Blocking Event Queue                  0           4
Midpath High Event Queue                  0           0
Midpath Norm Event Queue                  0           0
SRTP Event Queue                          0           0
HA Event Queue                            0           3
Threat-Detection Event Queue              0           3
```

```
ARP Event Queue                          0           3
IDFW Event Queue                         0           0
CXSC Event Queue                         0           0

EVENT-TYPE          ALLOC ALLOC-FAIL ENQUEUED ENQ-FAIL  RETIRED 15SEC-RATE
punt              4005920          0   935295  3070625  4005920       4372
  inspect-sunrp   4005920          0   935295  3070625  4005920       4372
routing              77          0       77        0       77          0
arp-in              618          0      618        0      618          0
identity-traffic   1519          0     1519        0     1519          0
syslog             5501          0     5501        0     5501          0
threat-detection     12          0       12        0       12          0
ips-cplane         1047          0     1047        0     1047          0
ha-msg              520          0      520        0      520          0
cxsc-msg            127          0      127        0      127          0
```

show asp load-balance

To display a histogram of the load balancer queue sizes, use the **show asp load-balance** command in privileged EXEC mode.

show asp load-balance [**detail**]

Syntax Description

detail	(Optional) Shows detailed information about hash buckets.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
8.1(1)	This command was introduced.

Usage Guidelines

The **show asp load-balance** command might help you troubleshoot a problem. Normally a packet will be processed by the same core that pulled it in from the interface receive ring. However, if another core is already processing the same connection as the packet just received, then the packet will be queued to that core. This queuing can cause the load balancer queue to grow while other cores are idle. See the **asp load-balance per-packet** command for more information.

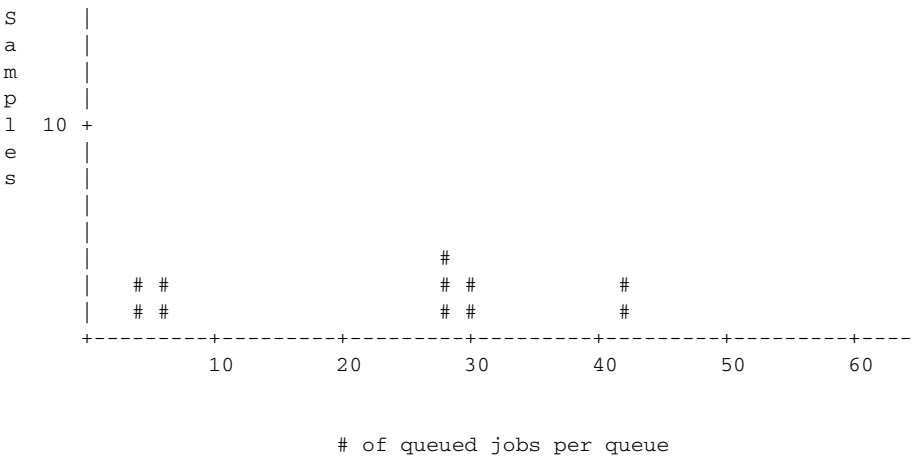
Examples

The following is sample output from the **show asp load-balance** command. The X-axis represents the number of packets queued in different queues. The Y-axis represents the number of load balancer hash buckets (not to be confused with the bucket in the histogram title, which refers to the histogram bucket) that has packets queued. To know the exact number of hash buckets having the queue, use the **detail** keyword.

```
hostname# show asp load-balance

Histogram of 'ASP load balancer queue sizes'
  64 buckets sampling from 1 to 65 (1 per bucket)
  6 samples within range (average=23)
                     ASP load balancer queue sizes

  100 +
      |
      |
      |
```



The following is sample output from the **show asp load-balance detail** command.

```
hostname# show asp load-balance detail

<Same histogram output as before with the addition of the following values for the
histogram>

Data points:
<snip>
  bucket[1-1] = 0 samples
  bucket[2-2] = 0 samples
  bucket[3-3] = 0 samples
  bucket[4-4] = 1 samples
  bucket[5-5] = 0 samples
  bucket[6-6] = 1 samples
<snip>
  bucket[28-28] = 2 samples
  bucket[29-29] = 0 samples
  bucket[30-30] = 1 samples
<snip>
  bucket[41-41] = 0 samples
  bucket[42-42] = 1 samples
```

RelatedCommands

Command	Description
asp load-balance per-packet	Changes the core load balancing method for multi-core ASA models.

show asp table arp

To debug the accelerated security path ARP tables, use the **show asp table arp** command in privileged EXEC mode.

show asp table arp [**interface** *interface_name*] [**address** *ip_address* [**netmask** *mask*]]

Syntax Description

address *ip_address*	(Optional) Identifies an IP address for which you want to view ARP table entries.
interface *interface_name*	(Optional) Identifies a specific interface for which you want to view the ARP table.
netmask *mask*	(Optional) Sets the subnet mask for the IP address.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **show arp** command shows the contents of the control plane, while the **show asp table arp** command shows the contents of the accelerated security path, which might help you troubleshoot a problem. See the CLI configuration guide for more information about the accelerated security path. These tables are used for debugging purposes only, and the information output is subject to change. Consult Cisco TAC to help you debug your system with this command.

Examples

The following is sample output from the **show asp table arp** command:

```
hostname# show asp table arp

Context: single_vf, Interface: inside
  10.86.194.50                            Active   000f.66ce.5d46 hits 0
  10.86.194.1                             Active   00b0.64ea.91a2 hits 638
  10.86.194.172                           Active   0001.03cf.9e79 hits 0
  10.86.194.204                           Active   000f.66ce.5d3c hits 0
  10.86.194.188                           Active   000f.904b.80d7 hits 0

Context: single_vf, Interface: identity
```

```
::                                      Active   0000.0000.0000 hits 0
0.0.0.0                                 Active   0000.0000.0000 hits 50208
```

Related Commands

Command	Description
show arp	Shows the ARP table.
show arp statistics	Shows ARP statistics.

show asp table classify

To debug the accelerated security path classifier tables, use the **show asp table classify** command in privileged EXEC mode.

s**how asp table classify** [**interface** *interface_name*] [**crypto** | **domain** *domain_name*] [**hits**] [**match** *regexp*] [**user-statistics**]

Syntax Description

crypto	(Optional) Shows the encrypt, decrypt, and ipsec tunnel flow domains only.
domain *domain_name*	(Optional) Shows entries for a specific classifier domain. See the "Usage Guidelines" section for a list of domains.
hits	(Optional) Shows classifier entries that have non-zero hits values.
interface *interface_name*	(Optional) Identifies a specific interface for which you want to view the classifier table.
match *regexp*	(Optional) Shows classifier entries that match the regular expression. Use quotes when regular expressions include spaces.
user-statistics	(Optional) Specifies user and group information.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(4)	Added the **hits** option and the timestamp to indicate the last time the ASP table counters were cleared.
8.0(2)	A new counter was added to show the number of times a match compilation was aborted. This counter is shown only if the value is greater than 0.
8.2(2)	Added the **match** *regexp* option.
8.4(4.1)	Added the **csxc** and **cxsc-auth-proxy** domains for the ASA CX module.
9.0(1)	The **user-statistics** keyword was added. The output was updated to add security group names and source and destination tags.

Usage Guidelines

The **show asp table classify** command shows the classifier contents of the accelerated security path, which might help you troubleshoot a problem. See the CLI configuration guide for more information about the accelerated security path. The classifier examines properties of incoming packets, such as protocol, and source and destination address, to match each packet to an appropriate classification rule. Each rule is labeled with a classification domain that determines what types of actions are performed, such as dropping a packet or allowing it through. The information shown is used for debugging purposes only, and the output is subject to change. Consult Cisco TAC to help you debug your system with this command.

Classifier domains include the following:

```
aaa-acct
aaa-auth
aaa-user
accounting
app-redirect
arp
autorp
backup interface CLI (Apply backup interface rule)
capture
cluster-drop-mcast-from-peer
cluster-drop-on-non-owner
cluster-drop-on-slave
cluster-mark-mcast-from-peer
cluster-redirect
conn-nailed
conn-set
ctcp
cxsc
cxsc-auth-proxy
debug-icmp-trace
decrypt
dhcp
dynamic-filter
eigrp
encrypt
established
filter-activex
filter-ftp
filter-https
filter-java
filter-url
flow-export
host
host-limit
hqf
ids
inspect-ctiqbe
inspect-dcerpc
inspect-dns-cp
inspect-dns-ids
inspect-dns-np
inspect-ftp
inspect-ftp-data
inspect-gtp
inspect-h323
inspect-http
inspect-icmp
inspect-icmp-error
inspect-ils
inspect-im
inspect-ip-options
```

```
inspect-ipsec-pass-thru
inspect-ipv6
inspect-mgcp
inspect-mmp
inspect-netbios
inspect-phone-proxy
inspect-pptp
inspect-rsh
inspect-rtsp
inspect-scansafe
inspect-sip
inspect-skinny
inspect-smtp
inspect-snmp
inspect-sqlnet
inspect-sqlnet-plus
inspect-srtp
inspect-sunrpc
inspect-tftp
inspect-waas
inspect-xdmcp
ipsec-natt
ipsec-tunnel-flow
ipv6
l2tp
l2tp-ppp
limits
lu
mgmt-lockdown
mgmt-tcp-intercept
multicast
nat
nat-per-session
nat-reverse
no forward CLI (Apply no forward interface rule)
null
ospf
permit
permit-ip-option
permit-ip-option-explicit
pim
ppp
priority-q
punt
punt-root (soft NP)
qos
qos-per-class (soft NP)
qos-per-dest  (soft NP)
qos-per-flow  (soft NP)
qos-per-source (soft NP)
rip
sal-relay
shun
soft-np-tcp-module
soft-np-udp-module
splitdns
ssm
ssm-app-capacity
ssm-isvw
ssm-isvw-capable
svc-ib-tunnel-flow
svc-ob-tunnel-flow
tcp-intercept
tcp-ping
```

```
udp-unidirectional
user-statistics
vpn-user
wccp
```

Examples

The following is sample output from the **show asp table classify** command:

```
hostname# show asp table classify

Interface test:
No. of aborted compiles for input action table 0x33b3d70: 29
in  id=0x36f3800, priority=10, domain=punt, deny=false
        hits=0, user_data=0x0, flags=0x0
        src ip=0.0.0.0, mask=0.0.0.0, port=0
        dst ip=10.86.194.60, mask=255.255.255.255, port=0
in  id=0x33d3508, priority=99, domain=inspect, deny=false
        hits=0, user_data=0x0, use_real_addr, flags=0x0
        src ip=0.0.0.0, mask=0.0.0.0, port=0
        dst ip=0.0.0.0, mask=0.0.0.0, port=0
in  id=0x33d3978, priority=99, domain=inspect, deny=false
        hits=0, user_data=0x0, use_real_addr, flags=0x0
        src ip=0.0.0.0, mask=0.0.0.0, port=53
        dst ip=0.0.0.0, mask=0.0.0.0, port=0
...
```

The following is sample output from the **show asp table classify hits** command with a record of the last clearing hits counters:

```
Interface mgmt:
in id=0x494cd88, priority=210, domain=permit, deny=true
       hits=54, user_data=0x1, cs_id=0x0, reverse, flags=0x0, protocol=0 src ip=0.0.0.0,
       mask=0.0.0.0, port=0 dst ip=255.255.255.255, mask=255.255.255.255, port=0,
       dscp=0x0
in id=0x494d1b8, priority=112, domain=permit, deny=false
       hits=1, user_data=0x0, cs_id=0x0, reverse, flags=0x0, protocol=1 src ip=0.0.0.0,
       mask=0.0.0.0, port=0 dst ip=0.0.0.0, mask=0.0.0.0, port=0, dscp=0x0

Interface inside:
in id=0x48f1580, priority=210, domain=permit, deny=true
       hits=54, user_data=0x1, cs_id=0x0, reverse, flags=0x0, protocol=0 src ip=0.0.0.0,
       mask=0.0.0.0, port=0 dst ip=255.255.255.255, mask=255.255.255.255, port=0,
       dscp=0x0
in id=0x48f09e0, priority=1, domain=permit, deny=false
       hits=101, user_data=0x0, cs_id=0x0, l3_type=0x608 src mac=0000.0000.0000,
       mask=0000.0000.0000 dst mac=0000.0000.0000, mask=0000.0000.0000
Interface outside:
in id=0x48c0970, priority=210, domain=permit, deny=true
hits=54, user_data=0x1, cs_id=0x0, reverse, flags=0x0, protocol=0 src ip=0.0.0.0,
mask=0.0.0.0, port=0 dst ip=255.255.255.255, mask=255.255.255.255, port=0, dscp=0x0
```

The following is sample output from the **show asp table classify hits** command that includes Layer 2 information:

```
Input Table
in  id=0x7fff2de10ae0, priority=120, domain=permit, deny=false
    hits=4, user_data=0x0, cs_id=0x0, reverse, flags=0x0, protocol=1
    src ip/id=0.0.0.0, mask=0.0.0.0, icmp-type=0
    dst ip/id=0.0.0.0, mask=0.0.0.0, icmp-code=0, dscp=0x0
    input_ifc=LAN-SEGMENT, output_ifc=identity in  id=0x7fff2de135c0, priority=0,
domain=inspect-ip-options, deny=true
    hits=41, user_data=0x0, cs_id=0x0, reverse, flags=0x0, protocol=0
```

```
    src ip/id=0.0.0.0, mask=0.0.0.0, port=0
    dst ip/id=0.0.0.0, mask=0.0.0.0, port=0, dscp=0x0
    input_ifc=LAN-SEGMENT, output_ifc=any

.
.
.

Output Table:

L2 - Output Table:

L2 - Input Table:
in  id=0x7fff2de0e080, priority=1, domain=permit, deny=false
    hits=30, user_data=0x0, cs_id=0x0, l3_type=0x608
    src mac=0000.0000.0000, mask=0000.0000.0000
    dst mac=0000.0000.0000, mask=0000.0000.0000
    input_ifc=LAN-SEGMENT, output_ifc=any
in  id=0x7fff2de0e580, priority=1, domain=permit, deny=false
    hits=382, user_data=0x0, cs_id=0x0, l3_type=0x8
    src mac=0000.0000.0000, mask=0000.0000.0000
    dst mac=0000.0000.0000, mask=0100.0000.0000
    input_ifc=LAN-SEGMENT, output_ifc=any
in  id=0x7fff2de0e800, priority=1, domain=permit, deny=false
    hits=312, user_data=0x0, cs_id=0x0, l3_type=0x8
    src mac=0000.0000.0000, mask=0000.0000.0000
    dst mac=ffff.ffff.ffff, mask=ffff.ffff.ffff
    input_ifc=LAN-SEGMENT, output_ifc=any
```

Related Commands

Command	Description
show asp drop	Shows the accelerated security path counters for dropped packets.

show asp table cluster chash-table

To debug the accelerated security path cHash tables for clustering, use the **show asp table cluster chash-table** command in privileged EXEC mode.

show asp table cluster chash-table

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

The **show asp table cluster chash-table** command shows the contents of the accelerated security path, which might help you troubleshoot a problem. See the CLI configuration guide for more information about the accelerated security path. These tables are used for debugging purposes only, and the information output is subject to change. Consult Cisco TAC to help you debug your system with this command.

Examples

The following is sample output from the **show asp table cluster chash-table** command:

```
hostname# show asp table cluster chash-table
Cluster current chash table:

00003333
21001200
22000033
02222223
33331111
21110000
00133103
22222223
30000102
11222222
23222331
00002223
33111111
```

```
11000112
22332000
00231121
11222220
33330223
31013211
11101111
13111111
11023133
30001100
00000111
12022222
00133333
33222000
00022222
33011333
11110002
33333322
13333030
```

Related Commands

Command	Description
show asp cluster counter	Shows cluster datapath counter information.

show asp table cts sgt-map

To show the IP address-security group table mapping from the IP address-security group table database that is maintained in the data path for Cisco TrustSec, use the **show asp table cts sgt-map** command in privileged EXEC mode.

show asp table cts sgt-map [**address** *ipv4* | **address** *ipv6* | **ipv4** | **ipv6** | **sgt** *sgt*]

Syntax Description

address *ipv4*	(Optional) Shows the IP address-security group table mapping for the specified IPv4 addresses.
address *ipv6*	(Optional) Shows the IP address-security group table mapping for the specified IPv6 addresses.
ipv4	(Optional) Shows all of the IP address-security group table mapping for IPv4 addresses.
ipv6	(Optional) Shows all of the IP address-security group table mapping for IPv6 addresses.
sgt *sgt*	(Optional) Shows the IP address-security group table mapping for the specified security group table.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

If the address is not specified, then all the entries in the the IP address-security group table database in the data path appear. The address can be an exact address or a subnet-based address. In addition, the security group names appear when available.

Examples

The following is sample output from the **show asp table cts sgt-map** command:

```
hostname# show asp table cts sgt-map

IP Address                      SGT
================================================
10.10.10.5                      1234:Marketing
```

```
55.67.89.12                         5:Engineering
56.34.0.0                           338:HR
192.4.4.4                           345:Finance

Total number of entries shown = 4
```

The following is sample output from the **show asp table cts sgt-map address** command:

```
hostname# show asp table cts sgt-map address 10.10.10.5

IP Address                          SGT
================================================
10.10.10.5                          1234:Marketing

Total number of entries shown = 1
```

The following is sample output from the **show asp table cts sgt-map ipv6** command:

```
hostname# show asp table cts sgt-map ipv6

IP Address                                SGT
============================================================
FE80::A8BB:CCFF:FE00:110                  17:Marketing-Servers
FE80::A8BB:CCFF:FE00:120                  18:Eng-Servers

Total number of entries shown = 2
```

The following is sample output from the **show asp table cts sgt-map sgt** command:

```
hostname# show asp table cts sgt-map sgt 17

IP Address                                SGT
============================================
FE80::A8BB:CCFF:FE00:110                  17

Total number of entries shown = 1
```

Related Commands

Command	Description
show running-config cts	Shows the SXP connections for the running configuration.
show cts environment	Shows the health and status of the environment data refresh operation.

show asp table dynamic-filter

To debug the accelerated security path Botnet Traffic Filter tables, use the **show asp table dynamic-filter** command in privileged EXEC mode.

show asp table dynamic-filter [**hits**]

Syntax Description

hits	(Optional) Shows classifier entries which have non-zero hits values.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

The **show asp table dynamic-filter** command shows the Botnet Traffic Filter rules in the accelerated security path, which might help you troubleshoot a problem. See the CLI configuration guide for more information about the accelerated security path. These tables are used for debugging purposes only, and the information output is subject to change. Consult Cisco TAC to help you debug your system with this command.

Examples

The following is sample output from the **show asp table dynamic-filter** command:

```
hostname# show asp table dynamic-filter

Context: admin
 Address 10.246.235.42 mask 255.255.255.255 name: example.info
flags: 0x44 hits 0
 Address 10.40.9.250 mask 255.255.255.255 name: bad3.example.com
flags: 0x44 hits 0
 Address 10.64.147.20 mask 255.255.255.255 name: bad2.example.com flags: 0x44
hits 0
 Address 10.73.210.121 mask 255.255.255.255 name: bad1.example.com flags:
0x44 hits 0
 Address 10.34.131.135 mask 255.255.255.255 name: bad.example.com flags:
0x44 hits 0
 Address 10.64.147.16 mask 255.255.255.255 name:
1st-software-downloads.com flags: 0x44 hits 2
 Address 10.131.36.158 mask 255.255.255.255 name: www.example.com flags: 0x41 hits 0
```

```
 Address 10.129.205.209 mask 255.255.255.255 flags: 0x1 hits 0
 Address 10.166.20.10 mask 255.255.255.255 flags: 0x1 hits 0
...
```

Related Commands

Command	Description
address	Adds an IP address to the blacklist or whitelist.
clear configure dynamic-filter	Clears the running Botnet Traffic Filter configuration.
clear dynamic-filter dns-snoop	Clears Botnet Traffic Filter DNS snooping data.
clear dynamic-filter reports	Clears Botnet Traffic filter report data.
clear dynamic-filter statistics	Clears Botnet Traffic filter statistics.
dns domain-lookup	Enables the ASA to send DNS requests to a DNS server to perform a name lookup for supported commands.
dns server-group	Identifies a DNS server for the ASA.
dynamic-filter ambiguous-is-black	Treats greylisted traffic as blacklisted traffic for action purposes.
dynamic-filter blacklist	Edits the Botnet Traffic Filter blacklist.
dynamic-filter database fetch	Manually retrieves the Botnet Traffic Filter dynamic database.
dynamic-filter database find	Searches the dynamic database for a domain name or IP address.
dynamic-filter database purge	Manually deletes the Botnet Traffic Filter dynamic database.
dynamic-filter drop blacklist	Automatically drops blacklisted traffic.
dynamic-filter enable	Enables the Botnet Traffic Filter for a class of traffic or for all traffic if you do not specify an access list.
dynamic-filter updater-client enable	Enables downloading of the dynamic database.
dynamic-filter use-database	Enables use of the dynamic database.
dynamic-filter whitelist	Edits the Botnet Traffic Filter whitelist.
inspect dns dynamic-filter-snoop	Enables DNS inspection with Botnet Traffic Filter snooping.
name	Adds a name to the blacklist or whitelist.
show dynamic-filter data	Shows information about the dynamic database, including when the dynamic database was last downloaded, the version of the database, how many entries the database contains, and 10 sample entries.
show dynamic-filter dns-snoop	Shows the Botnet Traffic Filter DNS snooping summary, or with the **detail** keyword, the actual IP addresses and names.
show dynamic-filter reports	Generates reports of the top 10 botnet sites, ports, and infected hosts.
show dynamic-filter statistics	Shows how many connections were monitored with the Botnet Traffic Filter, and how many of those connections match the whitelist, blacklist, and greylist.
show dynamic-filter updater-client	Shows information about the updater server, including the server IP address, the next time the ASA will connect with the server, and the database version last installed.
show running-config dynamic-filter	Shows the Botnet Traffic Filter running configuration.

show asp table filter

To debug the accelerated security path filter tables, use the **show asp table filter** command in privileged EXEC mode.

show asp table filter [**access-list** *acl-name*] [**hits**] [**match** *regexp*]

Syntax Description

acl-name	(Optional) Specifies the installed filter for a specified access list.
hits	(Optional) Specifies the filter rules that have non-zero hits values.
match *regexp*	(optional) Shows classifier entries that match the regular expression. Use quotes when regular expressions include spaces.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.2(2)	This command was introduced.

Usage Guidelines

When a filter has been applied to a VPN tunnel, the filter rules are installed into the filter table. If the tunnel has a filter specified, then the filter table is checked before encryption and after decryption to determine whether the inner packet should be permitted or denied.

Examples

The following is sample output from the **show asp table filter** command before a user1 connects. Only the implicit deny rules are installed for IPv4 and IPv6 in both the inbound and outbound directions.

```
hostname# show asp table filter

Global Filter Table:
 in  id=0xd616ef20, priority=11, domain=vpn-user, deny=true
        hits=0, user_data=0xd613ea60, filter_id=0x0(-implicit deny-), protocol=0
        src ip=0.0.0.0, mask=0.0.0.0, port=0
        dst ip=0.0.0.0, mask=0.0.0.0, port=0
 in  id=0xd616f420, priority=11, domain=vpn-user, deny=true
        hits=0, user_data=0xd615ef70, filter_id=0x0(-implicit deny-), protocol=0
        src ip=::/0, port=0
        dst ip=::/0, port=0
 out id=0xd616f1a0, priority=11, domain=vpn-user, deny=true
        hits=0, user_data=0xd614d900, filter_id=0x0(-implicit deny-), protocol=0
```

```
        src ip=0.0.0.0, mask=0.0.0.0, port=0
        dst ip=0.0.0.0, mask=0.0.0.0, port=0
 out id=0xd616f6d0, priority=11, domain=vpn-user, deny=true
        hits=0, user_data=0xd6161638, filter_id=0x0(-implicit deny-), protocol=0
        src ip=::/0, port=0
        dst ip=::/0, port=0
```

The following is sample output from the **show asp table filter** command after a user1 has connected. VPN filter ACLs are defined based on the inbound direction—the source represents the peer and the destination represents inside resources. The outbound rules are derived by swapping the source and destination for the inbound rule.

```
hostname# show asp table filter

Global Filter Table:
 in  id=0xd682f4a0, priority=12, domain=vpn-user, deny=false
        hits=0, user_data=0xd682f460, filter_id=0x2(vpnfilter), protocol=6
        src ip=0.0.0.0, mask=0.0.0.0, port=0
        dst ip=95.1.224.100, mask=255.255.255.255, port=21
 in  id=0xd68366a0, priority=12, domain=vpn-user, deny=false
        hits=0, user_data=0xd6d89050, filter_id=0x2(vpnfilter), protocol=6
        src ip=0.0.0.0, mask=0.0.0.0, port=0
        dst ip=95.1.224.100, mask=255.255.255.255, port=5001
 in  id=0xd45d5b08, priority=12, domain=vpn-user, deny=false
        hits=0, user_data=0xd45d5ac8, filter_id=0x2(vpnfilter), protocol=17
        src ip=0.0.0.0, mask=0.0.0.0, port=0
        dst ip=95.1.224.100, mask=255.255.255.255, port=5002
 in  id=0xd6244f30, priority=12, domain=vpn-user, deny=false
        hits=0, user_data=0xd6244ef0, filter_id=0x2(vpnfilter), protocol=1
        src ip=0.0.0.0, mask=0.0.0.0, port=0
        dst ip=95.1.224.100, mask=255.255.255.255, port=0
 in  id=0xd64edca8, priority=12, domain=vpn-user, deny=true
        hits=0, user_data=0xd64edc68, filter_id=0x2(vpnfilter), protocol=1
        src ip=0.0.0.0, mask=0.0.0.0, port=0
        dst ip=0.0.0.0, mask=0.0.0.0, port=0
 in  id=0xd616f018, priority=11, domain=vpn-user, deny=true
        hits=43, user_data=0xd613eb58, filter_id=0x0(-implicit deny-), protocol=0
        src ip=0.0.0.0, mask=0.0.0.0, port=0
        dst ip=0.0.0.0, mask=0.0.0.0, port=0
 in  id=0xd616f518, priority=11, domain=vpn-user, deny=true
        hits=0, user_data=0xd615f068, filter_id=0x0(-implicit deny-), protocol=0
        src ip=::/0, port=0
        dst ip=::/0, port=0
 out id=0xd7395650, priority=12, domain=vpn-user, deny=false
        hits=0, user_data=0xd7395610, filter_id=0x2(vpnfilter), protocol=6
        src ip=95.1.224.100, mask=255.255.255.255, port=21
        dst ip=0.0.0.0, mask=0.0.0.0, port=0
 out id=0xd45d49b8, priority=12, domain=vpn-user, deny=false
        hits=0, user_data=0xd45d4978, filter_id=0x2(vpnfilter), protocol=6
        src ip=95.1.224.100, mask=255.255.255.255, port=5001
        dst ip=0.0.0.0, mask=0.0.0.0, port=0
 out id=0xd45d5cf0, priority=12, domain=vpn-user, deny=false
        hits=0, user_data=0xd45d5cb0, filter_id=0x2(vpnfilter), protocol=17
        src ip=95.1.224.100, mask=255.255.255.255, port=5002
        dst ip=0.0.0.0, mask=0.0.0.0, port=0
 out id=0xd6245118, priority=12, domain=vpn-user, deny=false
        hits=0, user_data=0xd62450d8, filter_id=0x2(vpnfilter), protocol=1
        src ip=95.1.224.100, mask=255.255.255.255, port=0
        dst ip=0.0.0.0, mask=0.0.0.0, port=0
 out id=0xd64ede90, priority=12, domain=vpn-user, deny=true
        hits=0, user_data=0xd64ede50, filter_id=0x2(vpnfilter), protocol=1
        src ip=0.0.0.0, mask=0.0.0.0, port=0
        dst ip=0.0.0.0, mask=0.0.0.0, port=0
```

```
out id=0xd616f298, priority=11, domain=vpn-user, deny=true
        hits=0, user_data=0xd614d9f8, filter_id=0x0(-implicit deny-), protocol=0
        src ip=0.0.0.0, mask=0.0.0.0, port=0
        dst ip=0.0.0.0, mask=0.0.0.0, port=0
out id=0xd616f7c8, priority=11, domain=vpn-user, deny=true
        hits=0, user_data=0xd6161730, filter_id=0x0(-implicit deny-), protocol=0
        src ip=::/0, port=0
        dst ip=::/0, port=0
```

Related Commands

Command	Description
show asp drop	Shows the accelerated security path counters for dropped packets.
show asp table classifier	**S**hows the classifier contents of the accelerated security path.

show asp table interfaces

To debug the accelerated security path interface tables, use the **show asp table interfaces** command in privileged EXEC mode.

show asp table interfaces

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **show asp table interfaces** command shows the interface table contents of the accelerated security path, which might help you troubleshoot a problem. See the CLI configuration guide for more information about the accelerated security path. These tables are used for debugging purposes only, and the information output is subject to change. Consult Cisco TAC to help you debug your system with this command.

Examples

The following is sample output from the **show asp table interfaces** command:

```
hostname# show asp table interfaces

** Flags: 0x0001-DHCP, 0x0002-VMAC, 0x0010-Ident Ifc, 0x0020-HDB Initd,
   0x0040-RPF Enabled
Soft-np interface 'dmz' is up
    context single_vf, nicnum 0, mtu 1500
        vlan 300, Not shared, seclvl 50
        0 packets input, 1 packets output
        flags 0x20

Soft-np interface 'foo' is down
    context single_vf, nicnum 2, mtu 1500
        vlan <None>, Not shared, seclvl 0
        0 packets input, 0 packets output
        flags 0x20
```

```
Soft-np interface 'outside' is down
    context single_vf, nicnum 1, mtu 1500
        vlan <None>, Not shared, seclvl 50
        0 packets input, 0 packets output
        flags 0x20

Soft-np interface 'inside' is up
    context single_vf, nicnum 0, mtu 1500
        vlan <None>, Not shared, seclvl 100
        680277 packets input, 92501 packets output
        flags 0x20
...
```

Related Commands

Command	Description
interface	Configures an interface and enters interface configuration mode.
show interface	Displays the runtime status and statistics of interfaces.

show asp table routing

To debug the accelerated security path routing tables, use the **show asp table routing** command in privileged EXEC mode. This command supports IPv4 and IPv6 addresses.

show asp table routing [**input** | **output**] [**address** *ip_address* [**netmask** *mask*] | **interface** *interface_name*]

Syntax Description

address *ip_address*	Sets the IP address for which you want to view routing entries. For IPv6 addresses, you can include the subnet mask as a slash (/) followed by the prefix (0 to 128). For example, enter the following: `fe80::2e0:b6ff:fe01:3b7a/128`
input	Shows the entries from the input route table.
interface *interface_name*	(Optional) Identifies a specific interface for which you want to view the routing table.
netmask *mask*	For IPv4 addresses, specifies the subnet mask.
output	Shows the entries from the output route table.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **show asp table routing** command shows the routing table contents of the accelerated security path, which might help you troubleshoot a problem. See the CLI configuration guide for more information about the accelerated security path. These tables are used for debugging purposes only, and the information output is subject to change. Consult Cisco TAC to help you debug your system with this command.

Examples

The following is sample output from the **show asp table routing** command:

```
hostname# show asp table routing

in   255.255.255.255 255.255.255.255 identity
```

```
in   224.0.0.9       255.255.255.255 identity
in   10.86.194.60    255.255.255.255 identity
in   10.86.195.255   255.255.255.255 identity
in   10.86.194.0     255.255.255.255 identity
in   209.165.202.159 255.255.255.255 identity
in   209.165.202.255 255.255.255.255 identity
in   209.165.201.30  255.255.255.255 identity
in   209.165.201.0   255.255.255.255 identity
in   10.86.194.0     255.255.254.0   inside
in   224.0.0.0       240.0.0.0       identity
in   0.0.0.0         0.0.0.0         inside
out  255.255.255.255 255.255.255.255 foo
out  224.0.0.0       240.0.0.0       foo
out  255.255.255.255 255.255.255.255 test
out  224.0.0.0       240.0.0.0       test
out  255.255.255.255 255.255.255.255 inside
out  10.86.194.0     255.255.254.0   inside
out  224.0.0.0       240.0.0.0       inside
out  0.0.0.0         0.0.0.0         via 10.86.194.1, inside
out  0.0.0.0         0.0.0.0         via 0.0.0.0, identity
out  ::              ::              via 0.0.0.0, identity
```

Related Commands

Command	Description
show route	Shows the routing table in the control plane.

show asp table socket

To help debug the accelerated security path socket information, use the **show asp table socket** command in privileged EXEC mode.

show asp table socket [**socket handle**] [**stats**]

Syntax Description

socket handle	Specifies the length of the socket.
stats	Shows the statistics from the accelerated security path socket table.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

The **show asp table socket** command shows the accelerated security path socket information, which might help in troubleshooting accelerated security path socket problems. See the CLI configuration guide for more information about the accelerated security path. These tables are used for debugging purposes only, and the information output is subject to change. Consult Cisco TAC to help you debug your system with this command.

Examples

The following is sample output from the **show asp table socket** command:

```
TCP Statistics:
  Rcvd:
     total14794
     checksum errors0
     no port0
  Sent:
     total0

UDP Statistics:
  Rcvd:
     total0
     checksum errors0
  Sent:
     total0
```

```
     copied0

NP SSL System Stats:
  Handshake Started:33
  Handshake Complete:33
  SSL Open:4
  SSL Close:117
  SSL Server:58
  SSL Server Verify:0
  SSL Client:0
```

TCP/UDP statistics are packet counters representing the number of packets sent or received that are directed to a service that is running or listening on the ASA, such as Telnet, SSH, or HTTPS. Checksum errors are the number of packets dropped because the calculated packet checksum did not match the checksum value stored in the packet (that is, the packet was corrupted). The NP SSL statistics indicate the number of each type of message received. Most indicate the start and completion of new SSL connections to either the SSL server or SSL client.

Related Commands

Command	Description
show asp table vpn-context	Shows the accelerated security path VPN context tables.

show asp table vpn-context

To debug the accelerated security path VPN context tables, use the **show asp table vpn-context** command in privileged EXEC mode.

show asp table vpn-context [**detail**]

Syntax Description

detail	(Optional) Shows additional detail for the VPN context tables.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.
8.0(4)	Added +PRESERVE flag for each context that maintains stateful flows after the tunnel drops.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

The **show asp table vpn-context** command shows the VPN context contents of the accelerated security path, which might help you troubleshoot a problem. See the CLI configuration guide for more information about the accelerated security path. These tables are used for debugging purposes only, and the information output is subject to change. Consult Cisco TAC to help you debug your system with this command.

Examples

The following is sample output from the **show asp table vpn-context** command:

```
hostname# show asp table vpn-context

VPN ID=0058070576, DECR+ESP, UP, pk=0000000000, rk=0000000000, gc=0
VPN ID=0058193920, ENCR+ESP, UP, pk=0000000000, rk=0000000000, gc=0
VPN ID=0058168568, DECR+ESP, UP, pk=0000299627, rk=0000000061, gc=2
VPN ID=0058161168, ENCR+ESP, UP, pk=0000305043, rk=0000000061, gc=1
VPN ID=0058153728, DECR+ESP, UP, pk=0000271432, rk=0000000061, gc=2
VPN ID=0058150440, ENCR+ESP, UP, pk=0000285328, rk=0000000061, gc=1
VPN ID=0058102088, DECR+ESP, UP, pk=0000268550, rk=0000000061, gc=2
VPN ID=0058134088, ENCR+ESP, UP, pk=0000274673, rk=0000000061, gc=1
VPN ID=0058103216, DECR+ESP, UP, pk=0000252854, rk=0000000061, gc=2
...
```

The following is sample output from the **show asp table vpn-context** command when the persistent IPsec tunneled flows feature is enabled, as shown by the PRESERVE flag:

```
hostname(config)# show asp table vpn-context
VPN CTX=0x0005FF54, Ptr=0x6DE62DA0, DECR+ESP+PRESERVE, UP, pk=0000000000, rk=0000000000,
gc=0
VPN CTX=0x0005B234, Ptr=0x6DE635E0, ENCR+ESP+PRESERVE, UP, pk=0000000000, rk=0000000000,
gc=0
```

The following is sample output from the **show asp table vpn-context detail** command:

```
hostname# show asp table vpn-context detail

VPN Ctx  = 0058070576 [0x03761630]
State    = UP
Flags    = DECR+ESP
SA       = 0x037928F0
SPI      = 0xEA0F21F0
Group    = 0
Pkts     = 0
Bad Pkts = 0
Bad SPI  = 0
Spoof    = 0
Bad Crypto = 0
Rekey Pkt  = 0
Rekey Call = 0

VPN Ctx  = 0058193920 [0x0377F800]
State    = UP
Flags    = ENCR+ESP
SA       = 0x037B4B70
SPI      = 0x900FDC32
Group    = 0
Pkts     = 0
Bad Pkts = 0
Bad SPI  = 0
Spoof    = 0
Bad Crypto = 0
Rekey Pkt  = 0
Rekey Call = 0
...
```

The following is sample output from the **show asp table vpn-context detail** command when the persistent IPsec tunneled flows feature is enabled, as shown by the PRESERVE flag.:

```
hostname(config)# show asp table vpn-context detail

VPN CTX  = 0x0005FF54

Peer IP  = ASA_Private
Pointer  = 0x6DE62DA0
State    = UP
Flags    = DECR+ESP+PRESERVE
SA       = 0x001659BF
SPI      = 0xB326496C
Group    = 0
Pkts     = 0
Bad Pkts = 0
Bad SPI  = 0
Spoof    = 0
Bad Crypto = 0
Rekey Pkt  = 0
Rekey Call = 0
```

```
VPN CTX  = 0x0005B234

Peer IP  = ASA_Private
Pointer  = 0x6DE635E0
State    = UP
Flags    = ENCR+ESP+PRESERVE
SA       = 0x0017988D
SPI      = 0x9AA50F43
Group    = 0
Pkts     = 0
Bad Pkts = 0
Bad SPI  = 0
Spoof    = 0
Bad Crypto = 0
Rekey Pkt  = 0
Rekey Call = 0
hostname(config)#
Configuration and Restrictions
This configuration option is subject to the same CLI configuration restrictions as other
sysopt VPN CLI.
```

Related Commands

Command	Description
show asp drop	Shows the accelerated security path counters for dropped packets.

CHAPTER 46

show blocks through show cpu Commands

show blocks

To show the packet buffer utilization, use the **show blocks** command in privileged EXEC mode.

show blocks [{**address** *hex* | **all** | **assigned** | **free** | **old** | **pool** *size* [**summary**]} [**diagnostics** | **dump** | **header** | **packet**] | **queue history** [**detail**]]

Syntax Description

address *hex*	(Optional) Shows a block corresponding to this address, in hexadecimal.
all	(Optional) Shows all blocks.
assigned	(Optional) Shows blocks that are assigned and in use by an application.
detail	(Optional) Shows a portion (128 bytes) of the first block for each unique queue type.
dump	(Optional) Shows the entire block contents, including the header and packet information. The difference between dump and packet is that dump includes additional information between the header and the packet.
diagnostics	(Optional) Shows block diagnostics.
free	(Optional) Shows blocks that are available for use.
header	(Optional) Shows the header of the block.
old	(Optional) Shows blocks that were assigned more than a minute ago.
packet	(Optional) Shows the header of the block as well as the packet contents.
pool *size*	(Optional) Shows blocks of a specific size.
queue history	(Optional) Shows where blocks are assigned when the ASA runs out of blocks. Sometimes, a block is allocated from the pool but never assigned to a queue. In that case, the location is the code address that allocated the block.
summary	(Optional) Shows detailed information about block usage sorted by the program addresses of applications that allocated blocks in this class, program addresses of applications that released blocks in this class, and the queues to which valid blocks in this class belong.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	The **pool summary** option was added.
8.0(2)	The dupb block uses 0 length blocks now instead of 4 byte blocks. An additional line was added for 0 byte blocks.

Usage Guidelines

The **show blocks** command helps you determine if the ASA is overloaded. This command lists preallocated system buffer utilization. A full memory condition is not a problem as long as traffic is moving through the ASA. You can use the **show conn** command to see if traffic is moving. If traffic is not moving and the memory is full, there may be a problem.

You can also view this information using SNMP.

The information shown in a security context includes the system-wide information as well as context-specific information about the blocks in use and the high water mark for block usage.

See the "Examples" section for a description of the display output.

Examples

The following is sample output from the **show blocks** command in single mode:

```
hostname# show blocks
  SIZE    MAX    LOW    CNT
     0    100     99    100
     4   1600   1598   1599
    80    400    398    399
   256   3600   3540   3542
  1550   4716   3177   3184
 16384     10     10     10
  2048   1000   1000   1000
```

Table 46-1 shows each field description.

Table 46-1 show blocks Fields

Field	Description
SIZE	Size, in bytes, of the block pool. Each size represents a particular type. Examples are shown below.
0	Used by dupb blocks.
4	Duplicates existing blocks in applications such as DNS, ISAKMP, URL filtering, uauth, TFTP, and TCP modules. Also, this sized block can be used normally by code to send packets to drivers, etc.
80	Used in TCP intercept to generate acknowledgment packets and for failover hello messages.

Table 46-1 show blocks Fields (continued)

Field	Description
256	Used for Stateful Failover updates, syslogging, and other TCP functions. These blocks are mainly used for Stateful Failover messages. The active ASA generates and sends packets to the standby ASA to update the translation and connection table. In bursty traffic, where high rates of connections are created or torn down, the number of available blocks might drop to 0. This situation indicates that one or more connections were not updated to the standby ASA. The Stateful Failover protocol catches the missing translation or connection the next time. If the CNT column for 256-byte blocks stays at or near 0 for extended periods of time, then the ASA is having trouble keeping the translation and connection tables synchronized because of the number of connections per second that the ASA is processing. Syslog messages sent out from the ASA also use the 256-byte blocks, but they are generally not released in such quantity to cause a depletion of the 256-byte block pool. If the CNT column shows that the number of 256-byte blocks is near 0, ensure that you are not logging at Debugging (level 7) to the syslog server. This is indicated by the logging trap line in the ASA configuration. We recommend that you set logging at Notification (level 5) or lower, unless you require additional information for debugging purposes.
1550	Used to store Ethernet packets for processing through the ASA. When a packet enters an ASA interface, it is placed on the input interface queue, passed up to the operating system, and placed in a block. The ASA determines whether the packet should be permitted or denied based on the security policy and processes the packet through to the output queue on the outbound interface. If the ASA is having trouble keeping up with the traffic load, the number of available blocks will hover close to 0 (as shown in the CNT column of the command output). When the CNT column is zero, the ASA attempts to allocate more blocks, up to a maximum of 8192. If no more blocks are available, the ASA drops the packet.
16384	Only used for the 64-bit, 66-MHz Gigabit Ethernet cards (i82543). See the description for 1550 for more information about Ethernet packets.
2048	Control or guided frames used for control updates.
MAX	Maximum number of blocks available for the specified byte block pool. The maximum number of blocks are carved out of memory at bootup. Typically, the maximum number of blocks does not change. The exception is for the 256- and 1550-byte blocks, where the ASA can dynamically create more when needed, up to a maximum of 8192.
LOW	Low-water mark. This number indicates the lowest number of this size blocks available since the ASA was powered up, or since the last clearing of the blocks (with the **clear blocks** command). A zero in the LOW column indicates a previous event where memory was full.
CNT	Current number of blocks available for that specific size block pool. A zero in the CNT column means memory is full now.

The following is sample output from the **show blocks all** command:

```
hostname# show blocks all
Class 0, size 4
     Block   allocd_by    freed_by  data size    alloccnt     dup_cnt  oper location
0x01799940  0x00000000  0x00101603          0           0           0 alloc not_specified
0x01798e80  0x00000000  0x00101603          0           0           0 alloc not_specified
0x017983c0  0x00000000  0x00101603          0           0           0 alloc not_specified
```

```
...

    Found 1000 of 1000 blocks
    Displaying 1000 of 1000 blocks
```

Table 46-2 shows each field description.

Table 46-2 show blocks all Fields

Field	Description
Block	The block address.
allocd_by	The program address of the application that last used the block (0 if not used).
freed_by	The program address of the application that last released the block.
data size	The size of the application buffer/packet data that is inside the block.
alloccnt	The number of times this block has been used since the block came into existence.
dup_cnt	The current number of references to this block if used: 0 means 1 reference, 1 means 2 references.
oper	One of the four operations that was last performed on the block: alloc, get, put, or free.
location	The application that uses the block, or the program address of the application that last allocated the block (same as the allocd_by field).

The following is sample output from the **show blocks** command in a context:

```
hostname/contexta# show blocks
  SIZE    MAX    LOW    CNT  INUSE   HIGH
     4   1600   1599   1599      0      0
    80    400    400    400      0      0
   256   3600   3538   3540      0      1
  1550   4616   3077   3085      0      0
```

The following is sample output from the **show blocks queue history** command:

```
hostname# show blocks queue history
Each Summary for User and Queue_type is followed its top 5 individual queues
Block Size: 4
Summary for User "http", Queue "tcp_unp_c_in", Blocks 1595, Queues 1396
Blk_cnt Q_cnt Last_Op Queue_Type        User      Context
    186     1 put                               contexta
     15     1 put                               contexta
      1     1 put                               contexta
      1     1 put                               contextb
      1     1 put                               contextc
Summary for User "aaa", Queue "tcp_unp_c_in", Blocks 220, Queues 200
Blk_cnt Q_cnt Last_Op Queue_Type        User      Context
     21     1 put                               contexta
      1     1 put                               contexta
      1     1 put                               contexta
      1     1 put                               contextb
      1     1 put                               contextc
Blk_cnt Q_cnt Last_Op Queue_Type        User      Context
    200     1 alloc   ip_rx             tcp       contexta
    108     1 get     ip_rx             udp       contexta
     85     1 free    fixup             h323_ras  contextb
     42     1 put     fixup             skinny    contextb

Block Size: 1550
```

```
Summary for User "http", Queue "tcp_unp_c_in", Blocks 1595, Queues 1000
Blk_cnt Q_cnt Last_Op Queue_Type        User      Context
    186     1 put                               contexta
     15     1 put                               contexta
      1     1 put                               contexta
      1     1 put                               contextb
      1     1 put                               contextc
...
```

The following is sample output from the **show blocks queue history detail** command:

```
hostname# show blocks queue history detail
History buffer memory usage: 2136 bytes (default)
Each Summary for User and Queue type is followed its top 5 individual queues
Block Size: 4
Summary for User "http", Queue_Type "tcp_unp_c_in", Blocks 1595, Queues 1396
Blk_cnt Q_cnt Last_Op Queue_Type        User      Context
    186     1 put                               contexta
     15     1 put                               contexta
      1     1 put                               contexta
      1     1 put                               contextb
      1     1 put                               contextc
 First Block information for Block at 0x.....
  dup_count 0, flags 0x8000000, alloc_pc 0x43ea2a,
  start_addr 0xefb1074, read_addr 0xefb118c, write_addr 0xefb1193
  urgent_addr 0xefb118c, end_addr 0xefb17b2
  0efb1150: 00 00 00 03 47 c5 61 c5 00 05 9a 38 76 80 a3 00  |  ....G.a....8v...
  0efb1160: 00 0a 08 00 45 00 05 dc 9b c9 00 00 ff 06 f8 f3  |  ....E...........
  0efb1170: 0a 07 0d 01 0a 07 00 50 00 17 cb 3d c7 e5 60 62  |  .......P...=..`b
  0efb1180: 7e 73 55 82 50 18 10 00 45 ca 00 00 2d 2d 20 49  |  ~sU.P...E...-- I
  0efb1190: 50 20 2d 2d 0d 0a 31 30 2e 37 2e 31 33 2e 31 09  |  P --..10.7.13.1.
  0efb11a0: 3d 3d 3e 09 31 30 2e 37 2e 30 2e 38 30 0d 0a 0d  |  ==>.10.7.0.80...

Summary for User "aaa", Queue "tcp_unp_c_in", Blocks 220, Queues 200
Blk_cnt Q_cnt Last_Op Queue_Type        User      Context
     21     1 put                               contexta
      1     1 put                               contexta
      1     1 put                               contexta
      1     1 put                               contextb
      1     1 put                               contextc
 First Block information for Block at 0x.....
  dup_count 0, flags 0x8000000, alloc_pc 0x43ea2a,
  start_addr 0xefb1074, read_addr 0xefb118c, write_addr 0xefb1193
  urgent_addr 0xefb118c, end_addr 0xefb17b2
  0efb1150: 00 00 00 03 47 c5 61 c5 00 05 9a 38 76 80 a3 00  |  ....G.a....8v...
  0efb1160: 00 0a 08 00 45 00 05 dc 9b c9 00 00 ff 06 f8 f3  |  ....E...........
  0efb1170: 0a 07 0d 01 0a 07 00 50 00 17 cb 3d c7 e5 60 62  |  .......P...=..`b
  0efb1180: 7e 73 55 82 50 18 10 00 45 ca 00 00 2d 2d 20 49  |  ~sU.P...E...-- I
  0efb1190: 50 20 2d 2d 0d 0a 31 30 2e 37 2e 31 33 2e 31 09  |  P --..10.7.13.1.
  0efb11a0: 3d 3d 3e 09 31 30 2e 37 2e 30 2e 38 30 0d 0a 0d  |  ==>.10.7.0.80...
...

total_count: total buffers in this class
```

The following is sample output from the **show blocks pool summary** command:

```
hostname# show blocks pool 1550 summary
Class 3, size 1550

================================================
         total_count=1531    miss_count=0
Alloc_pc        valid_cnt       invalid_cnt
0x3b0a18        00000256        00000000
         0x01ad0760 0x01acfe00 0x01acf4a0 0x01aceb40 00000000 0x00000000
```

```
0x3a8f6b        00001275        00000012
         0x05006aa0 0x05006140 0x050057e0 0x05004520 00000000
0x00000000

================================================
         total_count=9716    miss_count=0
Freed_pc        valid_cnt       invalid_cnt
0x9a81f3        00000104        00000007
         0x05006140 0x05000380 0x04fffa20 0x04ffde00 00000000 0x00000000
0x9a0326        00000053        00000033
         0x05006aa0 0x050057e0 0x05004e80 0x05003260 00000000 0x00000000
0x4605a2        00000005        00000000
         0x04ff5ac0 0x01e8e2e0 0x01e2eac0 0x01e17d20 00000000 0x00000000
...
================================================
         total_count=1531    miss_count=0
Queue   valid_cnt       invalid_cnt
0x3b0a18        00000256        00000000  Invalid Bad qtype
         0x01ad0760 0x01acfe00 0x01acf4a0 0x01aceb40 00000000 0x00000000
0x3a8f6b        00001275        00000000  Invalid Bad qtype
         0x05006aa0 0x05006140 0x050057e0 0x05004520 00000000
0x00000000

================================================
free_cnt=8185  fails=0  actual_free=8185  hash_miss=0
   03a8d3e0  03a8b7c0  03a7fc40  03a6ff20  03a6f5c0  03a6ec60 kao-f1#
```

Table 46-3 shows each field description.

Table 46-3 show blocks pool summary Fields

Field	Description
total_count	The number of blocks for a given class.
miss_count	The number of blocks not reported in the specified category due to technical reasons.
Freed_pc	The program addresses of applications that released blocks in this class.
Alloc_pc	The program addresses of applications that allocated blocks in this class.
Queue	The queues to which valid blocks in this class belong.
valid_cnt	The number of blocks that are currently allocated.
invalid_cnt	The number of blocks that are not currently allocated.
Invalid Bad qtype	Either this queue has been freed and the contents are invalid or this queue was never initialized.
Valid tcp_usr_conn_inp	The queue is valid.

Related Commands

Command	Description
blocks	Increases the memory assigned to block diagnostics
clear blocks	Clears the system buffer statistics.
show conn	Shows active connections.

show boot device (IOS)

To view the default boot partition, use the **show boot device** command.

show boot device [*mod_num*]

Syntax Description

mod_num	(Optional) Specifies the module number. Use the **show module** command to view installed modules and their numbers.

Defaults

The default boot partition is cf:4.

Command Modes

Privileged EXEC.

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show boot device** command that shows the boot partitions for each installed ASA on Cisco IOS software:

```
Router# show boot device
[mod:1 ]:
[mod:2 ]:
[mod:3 ]:
[mod:4 ]: cf:4
[mod:5 ]: cf:4
[mod:6 ]:
[mod:7 ]: cf:4
[mod:8 ]:
[mod:9 ]:
```

Related Commands

Command	Description
boot device (IOS)	Sets the default boot partition.
show module (IOS)	Shows all installed modules.

show bootvar

To show the boot file and configuration properties, use the **show bootvar** command in privileged EXEC mode.

show bootvar

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

The BOOT variable specifies a list of bootable images on various devices. The CONFIG_FILE variable specifies the configuration file used during system initialization. Set these variables with the **boot system** command and **boot config** command, respectively.

Examples

The BOOT variable contains disk0:/f1_image, which is the image booted when the system reloads. The current value of BOOT is disk0:/f1_image; disk0:/f1_backupimage. This value means that the BOOT variable has been modified with the **boot system** command, but the running configuration has not been saved with the **write memory** command. When the running configuration is saved, the BOOT variable and current BOOT variable will both be disk0:/f1_image; disk0:/f1_backupimage. Assuming that the running configuration is saved, the boot loader will try to load the contents of the BOOT variable, starting with disk0:/f1image, but if that is not present or invalid, the boot loader will try to boot disk0:1/f1_backupimage.

The CONFIG_FILE variable points to the system startup configuration. In this example it is not set, so the startup configuration file is the default specified with the **boot config** command. The current CONFIG_FILE variable may be modified with the **boot config** command and saved with the **write memory** command.

The following is sample output from the **show bootvar** command:

```
hostname# show bootvar
BOOT variable = disk0:/f1_image
Current BOOT variable = disk0:/f1_image; disk0:/f1_backupimage
```

```
CONFIG_FILE variable =
Current CONFIG_FILE variable =
hostname#
```

Related Commands

Command	Description
boot	Specifies the configuration file or image file used at startup.

show bridge-group

To show bridge group information such as interfaces assigned, MAC addresses, and IP addresses, use the **show bridge-group** command in privileged EXEC mode.

show bridge-group *bridge-group-number*

Syntax Description

bridge-group-number	Specifies the bridge group number as an integer between 1 and 100.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	—	•	•	•	—

Command History

Release	Modification
8.4(1)	We introduced this command.

Examples

The following is sample output from the **show bridge-group** command with IPv4 addresses:

```
hostname# show bridge-group 1
 Interfaces: GigabitEthernet0/0.101, GigabitEthernet0/0.201
 Management System IP Address: 10.0.1.1 255.255.255.0
 Management Current IP Address: 10.0.1.1 255.255.255.0
 Management IPv6 Global Unicast Address(es):
    N/A
 Static mac-address entries: 0
 Dynamic mac-address entries: 2
```

The following is sample output from the **show bridge-group** command with IPv4 and IPv6 addresses:

```
hostname# show bridge-group 1
 Interfaces: GigabitEthernet0/0.101, GigabitEthernet0/0.201
 Management System IP Address: 10.0.1.1 255.255.255.0
 Management Current IP Address: 10.0.1.1 255.255.255.0
 Management IPv6 Global Unicast Address(es):
    2000:100::1, subnet is 2000:100::/64
    2000:101::1, subnet is 2000:101::/64
    2000:102::1, subnet is 2000:102::/64
 Static mac-address entries: 0
 Dynamic mac-address entries: 2
```

Related Commands

Command	Description
bridge-group	Groups transparent firewall interfaces into a bridge group.
clear configure interface bvi	Clears the bridge group interface configuration.
interface	Configures an interface.
interface bvi	Creates a bridge virtual interface.
ip address	Sets the management IP address for a bridge group.
show running-config interface bvi	Shows the bridge group interface configuration.

show call-home

To display the configured Call Home information, use the **show call-home** command in privileged EXEC mode.

[**cluster exec**] **show call-home** [**alert-group** | **detail** | **events** | **mail-server status** | **profile** {*profile _name* | **all**} | **statistics**]

Syntax Description

alert-group	(Optional) Displays the available alert group.
cluster exec	(Optional) In a clustering environment, enables you to issue the **show call-home** command in one unit and run the command in all the other units at the same time.
detail	(Optional) Displays the Call Home configuration in detail.
events	(Optional) Displays current detected events.
mail-server status	(Optional) Displays the Call Home mail server status information.
profile *profile _name* **all**	(Optional) Displays configuration information for all existing profiles.
statistics	(Optional) Displays the Call Home statistics.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
8.2(2)	This command was introduced.
9.1(3)	A new type of Smart Call Home message has been added to include the output of the **show cluster history** command and **show cluster info** command.

Examples

The following is sample output from the **show call-home** command and displays the configured Call Home settings:

```
hostname# show call-home
Current Smart Call-Home settings:
Smart Call-Home feature : enable
Smart Call-Home message's from address: from@example.com
Smart Call-Home message's reply-to address: reply-to@example.com
contact person's email address: example@example.com
contact person's phone: 111-222-3333
street address: 1234 Any Street, Any city, Any state, 12345
customer ID: ExampleCorp
```

```
contract ID: X123456789
site ID: SantaClara
Mail-server[1]: Address: smtp.example.com Priority: 1
Mail-server[2]: Address: 192.168.0.1 Priority: 10
Rate-limit: 60 message(s) per minute
Available alert groups:
Keyword                  State
------------------------ -------
Syslog Enable
diagnostic Enable
environmental Enable
inventory Enable
configuration Enable
firewall Enable
troubleshooting Enable
report Enable
Profiles:
Profile Name: CiscoTAC-1
Profile Name: prof1
Profile Name: prof2
```

The following is sample output from the **show call-home detail** command and displays detailed Call Home configuration information:

```
hostname# show call-home detail
Description: Show smart call-home configuration in detail.
Supported Modes: single mode and system context in multi mode, routed/transparent.
Output:
Current Smart Call-Home settings:
Smart Call-Home feature : enable
Smart Call-Home message's from address: from@example.example.com
Smart Call-Home message's reply-to address: reply-to@example.example.com
contact person's email address: abc@example.com
contact person's phone: 111-222-3333
street address: 1234 Any Street, Any city, Any state, 12345
customer ID: 111111
contract ID: 123123
site ID: SantaClara
Mail-server[1]: Address: example.example.com Priority: 1
Mail-server[2]: Address: example.example.com Priority: 10
Rate-limit: 60 message(s) per minute
Available alert groups:
Keyword State
------------------------ -------
syslog Enable
diagnostic Enable
environmental Enable
inventory Enable
configuration Enable
firewall Enable
troubleshooting Enable
report Enable
Profiles:
Profile Name: CiscoTAC-1
Profile status: ACTIVE Preferred Message Format: xml
Message Size Limit: 3145728 Bytes
Email address(es): anstage@cisco.com
HTTP address(es): https://tools.cisco.com/its/service/oddce/services/DDCEService
Periodic inventory message is scheduled monthly at 01:00
Alert-group Severity
------------------------ ------------
inventory n/a
```

```
Profile Name: prof1
Profile status: ACTIVE Preferred Message Format: xml
Message Size Limit: 3145728 Bytes
Email address(es): example@example.com
HTTP address(es): https://kafan-lnx-01.cisco.com:8443/sch/sch.jsp
Periodic configuration message is scheduled daily at 01:00
Periodic inventory message is scheduled every 60 minutes
Alert-group Severity
------------------------ ------------
configuration n/a
inventory n/a
Profile Name: prof2
Profile status: ACTIVE Preferred Message Format: short-text
Message Size Limit: 1048576 Bytes
Email address(es): example@example.com
HTTP address(es): https://example.example.com:8443/sch/sch.jsp
Periodic configuration message is scheduled every 1 minutes
Periodic inventory message is scheduled every 1 minutes
Alert-group Severity
------------------------ ------------
configuration n/a
inventory n/a
```

The following is sample output from the **show call-home events** command and displays available Call Home events:

```
hostname# show call-home events
Description: Show current detected events.
Supported Modes: single mode and system context in multi mode, routed/transparent.
Output:
Active event list:
Event client alert-group severity active (sec)
-------------------------------------------------------------------
Configuration Client configuration none 5
Inventory inventory none 15
```

The following is sample output from the **show call-home mail-server status** command and displays available Call Home mail-server status:

```
hostname# show call-home mail-server status
Description: Show smart call-home configuration, status, and statistics.
Supported Modes: single mode and system context in multi mode, routed/transparent.
Output:
Mail-server[1]: Address: example.example.com Priority: 1 [Available]
Mail-server[2]: Address: example.example.com Priority: 10 [Not Available]
```

The following is sample output from the **show call-home alert-group** comand and displays the available alert groups:

```
hostname# show call-home alert-group
Description: Show smart call-home alert-group states.
Supported Modes: single mode and system context in multi mode, routed/transparent.
Output:
Available alert groups:
Keyword State
------------------------ -------
syslog Enable
diagnostic Enable
environmental Enable
inventory Enable
configuration Enable
firewall Enable
troubleshooting Enable
report Enable
```

The following is sample output from the **show call-home profile profile-name | all** command and displays information for all predefined and user-defined profiles:

```
hostname# show call-home profile {profile-name | all}
Description: Show smart call-home profile configuration.
Supported Modes: single mode and system context in multi mode, routed/transparent.
Output:
Profiles:
Profile Name: CiscoTAC-1
Profile status: ACTIVE Preferred Message Format: xml
Message Size Limit: 3145728 Bytes
Email address(es): anstage@cisco.com
HTTP address(es): https://tools.cisco.com/its/service/oddce/services/DDCEService
Periodic inventory message is scheduled monthly at 01:00
Alert-group Severity
------------------------ ------------
inventory n/a
Profile Name: prof1
Profile status: ACTIVE Preferred Message Format: xml
Message Size Limit: 3145728 Bytes
Email address(es): example@example.com
HTTP address(es): https://example.example.com:8443/sch/sch.jsp
Periodic configuration message is scheduled daily at 01:00
Periodic inventory message is scheduled every 60 minutes
Alert-group Severity
------------------------ ------------
configuration n/a
inventory n/a
Profile Name: prof2
Profile status: ACTIVE Preferred Message Format: short-text
Message Size Limit: 1048576 Bytes
Email address(es): example@example.com
HTTP address(es): https://example.example.com:8443/sch/sch.jsp
Periodic configuration message is scheduled every 1 minutes
Periodic inventory message is scheduled every 1 minutes
Alert-group Severity
------------------------ ------------
configuration n/a
inventory n/a
```

The following is sample output from the **show call-home statistics** command and displays the call-home statistics:

```
hostname# show call-home statistics
Description: Show smart call-home statistics.
Supported Modes: single mode and system context in multi mode, routed/transparent.
Output:
Message Types Total Email HTTP
-------------------- ---------------- ---------------- ----------------
Total Success 0 0 0
Total In-Queue 0 0 0
Total Dropped 5 4 1
Tx Failed 5 4 1
inventory 3 2 1
configuration 2 2 0
Event Types Total
-------------------- ----------------
Total Detected 2
inventory 1
configuration 1
Total In-Queue 0
Total Dropped 0
Last call-home message sent time: 2009-06-17 14:22:09 GMT-07:00
```

The following is sample output from the **show call-home status** command and displays the call-home status:

```
hostname# show call-home mail-server status
Description: Show smart call-home configuration, status, and statistics.
Supported Modes: single mode and system context in multi mode, routed/transparent.
Output:
Mail-server[1]: Address: kafan-lnx-01.cisco.com Priority: 1 [Available]
Mail-server[2]: Address: kafan-lnx-02.cisco.com Priority: 10 [Not Available]

37. ciscoasa# show call-home events
Description: Show current detected events.
Supported Modes: single mode and system context in multi mode, routed/transparent.
Output:
Active event list:
Event client alert-group severity active (sec)
-------------------------------------------------------------------
Configuration Client configuration none 5
Inventory inventory none 15
```

The following is sample output from the **cluster exec show call-home statistics** command and displays call-home statistics for a cluster:

```
hostname(config)# cluster exec show call-home statistics
A(LOCAL):*********************************************************
Message Types           Total             Email             HTTP
--------------------   ---------------- ---------------- ----------------
       Total Success                  3                3                0
                test                  3                3                0

 Total In-Delivering                  0                0                0

      Total In-Queue                  0                0                0

Total Dropped                         8                8                0
           Tx Failed                  8                8                0
        configuration                 2                2                0
                test                  6                6                0


Event Types             Total
--------------------   ----------------
      Total Detected                10
       configuration                 1
                test                 9

 Total In-Processing                 0

      Total In-Queue                 0

Total Dropped                        0

Last call-home message sent time: 2013-04-15 05:37:16 GMT+00:00

B:****************************************************************
Message Types           Total             Email             HTTP
--------------------   ---------------- ---------------- ----------------
       Total Success                  1                1                0
                test                  1                1                0

 Total In-Delivering                  0                0                0
```

```
      Total In-Queue                  0                0                0

Total Dropped                         2                2                0
           Tx Failed                  2                2                0
       configuration                  2                2                0

Event Types             Total
--------------------   ----------------
      Total Detected                  2
       configuration                  1
                test                  1

 Total In-Processing                  0

      Total In-Queue                  0

Total Dropped                         0

Last call-home message sent time: 2013-04-15 05:36:16 GMT+00:00

C:**********************************************************************
Message Types           Total            Email             HTTP
--------------------   ---------------- ---------------- ----------------
       Total Success                  0                0                0

 Total In-Delivering                  0                0                0

      Total In-Queue                  0                0                0

Total Dropped                         2                2                0
           Tx Failed                  2                2                0
       configuration                  2                2                0

Event Types             Total
--------------------   ----------------
      Total Detected                  1
       configuration                  1

 Total In-Processing                  0

      Total In-Queue                  0

Total Dropped                         0

Last call-home message sent time: n/a

D:**********************************************************************
Message Types           Total            Email             HTTP
--------------------   ---------------- ---------------- ----------------
       Total Success                  1                1                0
                test                  1                1                0

 Total In-Delivering                  0                0                0

      Total In-Queue                  0                0                0

Total Dropped                         2                2                0
           Tx Failed                  2                2                0
       configuration                  2                2                0

Event Types             Total
--------------------   ----------------
      Total Detected                  2
       configuration                  1
```

```
                test                    1
 Total In-Processing                    0
      Total In-Queue                    0
Total Dropped                           0
Last call-home message sent time: 2013-04-15 05:35:34 GMT+00:00
hostname(config)#
```

Related Commands

Command	Description
call-home	Enters call home configuration mode.
call-home send alert-group	Sends a specific alert group message.
service call-home	Enables or disables Call Home.

show call-home registered-module status

To display the registered module status, use the **show call-home registered-module status** command in privileged EXEC mode.

show call-home registered-module status [**all**]

Note The [**all**] option is only valid in system context mode.

Syntax Description

all	Displays module status based on the device, not per context. In multiple context mode, if a module is enabled in at least one context, it is displayed as enabled if the "**all**" option is included.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
8.2(2)	This command was introduced.

Examples

The following example displays the **show call-home registered-module status all** output:

```
Output:
Module Name Status
---------------------------------------- --------------------
Smart Call-Home enabled
Failover Standby/Active
```

Related Commands

Command	Description
call-home	Enters call-home configuration mode.
call-home send alert-group	Sends a specific alert group message.
service call-home	Enables or disables Call Home.

show capture

To display the capture configuration when no options are specified, use the **show capture** command in privileged EXEC mode.

[**cluster exec**] **show capture** [*capture_name*] [**access-list** *access_list_name*] [**count** *number*] [**decode**] [**detail**] [**dump**] [**packet-number** *number*]

Syntax Description

access-list *access_list_name*	(Optional) Displays information for packets that are based on IP or higher fields for the specific access list identification.
capture_name	(Optional) Specifies the name of the packet capture.
cluster exec	(Optional) In a clustering environment, enables you to issue the **show capture** command in one unit and run the command in all the other units at the same time.
count *number*	(Optional) Displays the number of packets specified data.
decode	This option is useful when a capture of type isakmp is applied to an interface. All ISAKMP data flowing through that interface will be captured after decryption and shown with more information after decoding the fields.
detail	(Optional) Displays additional protocol information for each packet.
dump	(Optional) Displays a hexadecimal dump of the packets that are transported over the data link.
packet-number *number*	Starts the display at the specified packet number.

Defaults

This command has no default settings.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.
8.4(2)	Added detailed information in the output for IDS.
9.0(1)	The **cluster exec** option was added.

Usage Guidelines

If you specify the *capture_name*, then the capture buffer contents for that capture are displayed.

The **dump** keyword does not display MAC information in the hexadecimal dump.

The decoded output of the packets depend on the protocol of the packet. In Table 46-4, the bracketed output is displayed when you specify the **detail** keyword.

Table 46-4 Packet Capture Output Formats

Packet Type	Capture Output Format
802.1Q	*HH:MM:SS.ms* [ether-hdr] *VLAN-info encap-ether-packet*
ARP	*HH:MM:SS.ms* [ether-hdr] *arp-type arp-info*
IP/ICMP	*HH:MM:SS.ms* [ether-hdr] *ip-source* > *ip-destination:* icmp: *icmp-type icmp-code* [checksum-failure]
IP/UDP	*HH:MM:SS.ms* [ether-hdr] *src-addr.src-port dest-addr.dst-port*: [checksum-info] udp *payload-len*
IP/TCP	*HH:MM:SS.ms* [ether-hdr] *src-addr.src-port* d*est-addr.dst-port*: *tcp-flags* [header-check] [checksum-info] *sequence-number ack-number tcp-window urgent-info tcp-options*
IP/Other	*HH:MM:SS.ms* [ether-hdr] *src-addr dest-addr*: *ip-protocol ip-length*
Other	*HH:MM:SS.ms ether-hdr*: *hex-dump*

Examples

This example shows how to display the capture configuration:

```
hostname(config)# show capture
capture arp ethernet-type arp interface outside
capture http access-list http packet-length 74 interface inside
```

This example shows how to display the packets that are captured by an ARP capture:

```
hostname(config)# show capture arp
2 packets captured
19:12:23.478429 arp who-has 171.69.38.89 tell 171.69.38.10
19:12:26.784294 arp who-has 171.69.38.89 tell 171.69.38.10
2 packets shown
```

The following example shows how to display the packets that are captured on a single unit in a clustering environment:

```
hostname(config)# show capture
capture 1 cluster type raw-data interface primary interface cluster [Buffer Full - 524187
bytes]
capture 2 type raw-data interface cluster [Capturing - 232354 bytes]
```

The following example shows how to display the packets that are captured on all units in a clustering environment:

```
hostname(config)# cluster exec show capture
mycapture (LOCAL):-------------------------------------------------------------

capture 1 type raw-data interface primary [Buffer Full - 524187 bytes]
capture 2 type raw-data interface cluster [Capturing - 232354 bytes]

yourcapture:-------------------------------------------------------------------
capture 1 type raw-data interface primary [Capturing - 191484 bytes]
capture 2 type raw-data interface cluster [Capturing - 532354 bytes]
```

The following example shows the packets that are captured on the cluster control link in a clustering environment after the following commands are entered:

```
hostname (config)# capture a interface cluster
hostname (config)# capture cp interface cluster match udp any eq 49495 any
hostname (config)# capture cp interface cluster match udp any any eq 49495
hostname (config)# access-list cc1 extended permit udp any any eq 4193
hostname (config)# access-list cc1 extended permit udp any eq 4193 any
hostname (config)# capture dp interface cluster access-list cc1
hostname (config)# capture lacp type lacp interface gigabitEthernet 0/0

hostname(config)# show capture
capture a type raw-data interface cluster [Capturing - 970 bytes]
capture cp type raw-data interface cluster [Capturing - 26236 bytes]
  match udp any eq 49495 any
capture dp type raw-data access-list cc1 interface cluster [Capturing - 4545230 bytes]
capture lacp type lacp interface gigabitEthernet0/0 [Capturing - 140 bytes]
```

Related Commands

Command	Description
capture	Enables packet capture capabilities for packet sniffing and network fault isolation.
clear capture	Clears the capture buffer.
copy capture	Copies a capture file to a server.

show chardrop

To display the count of characters dropped from the serial console, use the **show chardrop** command in privileged EXEC mode.

show chardrop

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
9.0(1)	This command was introduced.

Examples

The following is sample output from the **show chardrop** command:

```
hostname# show chardrop
Chars dropped pre-TxTimeouts: 0, post-TxTimeouts: 0
```

Related Commands

Command	Description
show running-config	Shows the current operating configuration.

show checkheaps

To show the checkheaps statistics, use the **show checkheaps** command in privileged EXEC mode. Checkheaps is a periodic process that verifies the sanity of the heap memory buffers (dynamic memory is allocated from the system heap memory region) and the integrity of the code region.

show checkheaps

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show checkheaps** command:

```
hostname# show checkheaps

Checkheaps stats from buffer validation runs
--------------------------------------------
Time elapsed since last run     : 42 secs
Duration of last run            : 0 millisecs
Number of buffers created       : 8082
Number of buffers allocated     : 7808
Number of buffers free          : 274
Total memory in use             : 43570344 bytes
Total memory in free buffers    : 87000 bytes
Total number of runs            : 310
```

Related Commands

Command	Description
checkheaps	Sets the checkheap verification intervals.

show checksum

To display the configuration checksum, use the **show checksum** command in privileged EXEC mode.

show checksum

Syntax Description

This command has no arguments or keywords.

Defaults

This command has no default settings.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

The **show checksum** command allows you to display four groups of hexadecimal numbers that act as a digital summary of the configuration contents. This checksum is calculated only when you store the configuration in flash memory.

If a dot (“.”) appears before the checksum in the **show config** or **show checksum** command output, the output indicates a normal configuration load or write mode indicator (when loading from or writing to the ASA flash partition). The “.” shows that the ASA is preoccupied with the operation but is not “hung up.” This message is similar to a “system processing, please wait” message.

Examples

This example shows how to display the configuration or the checksum:

```
hostname(config)# show checksum
Cryptochecksum: 1a2833c0 129ac70b 1a88df85 650dbb81
```

show chunkstat

To display the chunk statistics, use the **show chunkstat** command in privileged EXEC mode.

show chunkstat

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

This example shows how to display the chunk statistics:

```
hostname# show chunkstat
Global chunk statistics: created 181, destroyed 34, siblings created 94, siblings
destroyed 34

Per-chunk statistics: siblings created 0, siblings trimmed 0
Dump of chunk at 01edb4cc, name "Managed Chunk Queue Elements", data start @ 01edbd24, end
@ 01eddc54
next: 01eddc8c, next_sibling: 00000000, prev_sibling: 00000000
flags 00000001
maximum chunk elt's: 499, elt size: 16, index first free 498
# chunks in use: 1, HWM of total used: 1, alignment: 0
Per-chunk statistics: siblings created 0, siblings trimmed 0
Dump of chunk at 01eddc8c, name "Registry Function List", data start @ 01eddea4, end @
01ede348
next: 01ede37c, next_sibling: 00000000, prev_sibling: 00000000
flags 00000001
maximum chunk elt's: 99, elt size: 12, index first free 42
# chunks in use: 57, HWM of total used: 57, alignment: 0
```

Related Commands

Command	Description
show counters	Displays the protocol stack counters.
show cpu	Displays the CPU utilization information.

show class

To show the contexts assigned to a class, use the **show class** command in privileged EXEC mode.

show class *name*

Syntax Description

name	Specifies the name as a string up to 20 characters long. To show the default class, enter **default** for the name.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	—	—	•

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following is sample output from the **show class default** command:

```
hostname# show class default

Class Name           Members    ID   Flags
default                All       1    0001
```

Related Commands

Command	Description
class	Configures a resource class.
clear configure class	Clears the class configuration.
context	Configures a security context.
limit-resource	Sets the resource limit for a class.
member	Assigns a context to a resource class.

show clock

To view the time on the ASA, use the **show clock** command in user EXEC mode.

show clock [**detail**]

Syntax Description

detail	(Optional) Indicates the clock source (NTP or user configuration) and the current summer-time setting (if any).

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
User EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show clock** command:

```
hostname> show clock
12:35:45.205 EDT Tue Jul 27 2004
```

The following is sample output from the **show clock detail** command:

```
hostname> show clock detail
12:35:45.205 EDT Tue Jul 27 2004
Time source is user configuration
Summer time starts 02:00:00 EST Sun Apr 4 2004
Summer time ends 02:00:00 EDT Sun Oct 31 2004
```

Related Commands

Command	Description
clock set	Manually sets the clock on the ASA.
clock summer-time	Sets the date range to show daylight saving time.
clock timezone	Sets the time zone.
ntp server	Identifies an NTP server.
show ntp status	Shows the status of the NTP association.

show cluster

To view aggregated data for the entire cluster or other information, use the **show cluster** command in privileged EXEC mode.

show cluster {**access-list** [*acl_name*] | **conn** [**count**] | **cpu** [**usage**] | **history** | **interface-mode** | **memory** | **resource usage** | **traffic** | **xlate count**}

Syntax Description

access-list [*acl_name*]	Shows hit counters for access policies. To see the counters for a specific ACL, enter the *acl_name*.
conn [**count**]	Shows the aggregated count of in-use connections for all units. If you enter the **count** keyword, only the connection count is shown.
cpu [**usage**]	Shows CPU usage information.
history	Shows cluster switching history.
interface-mode	Shows the cluster interface mode, either spanned or individual.
memory	Shows system memory utilization and other information.
resource usage	Shows system resources and usage.
traffic	Shows traffic statistics.
xlate count	Shows current translation information.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

See also the **show cluster info** and **show cluster user-identity** commands.

Examples

The following is sample output from the **show cluster access-list** command:

```
hostname#  show cluster access-list
hitcnt display order: cluster-wide aggregated result, unit-A, unit-B,  unit-C, unit-D
access-list cached ACL log flows: total 0, denied 0 (deny-flow-max 4096) alert-interval
300
access-list 101; 122 elements; name hash: 0xe7d586b5
```

```
access-list 101 line 1 extended permit tcp 192.168.143.0 255.255.255.0 any eq www
(hitcnt=0, 0, 0, 0, 0) 0x207a2b7d
access-list 101 line 2 extended permit tcp any 192.168.143.0 255.255.255.0 (hitcnt=0, 0,
0, 0, 0) 0xfe4f4947
access-list  101 line 3 extended permit tcp host 192.168.1.183 host 192.168.43.238
(hitcnt=1, 0, 0, 0, 1) 0x7b521307
access-list 101 line 4 extended permit tcp host 192.168.1.116 host 192.168.43.238
(hitcnt=0, 0, 0, 0, 0) 0x5795c069
access-list 101 line 5 extended permit tcp host 192.168.1.177 host 192.168.43.238
(hitcnt=1, 0, 0, 1, 0) 0x51bde7ee
access list 101 line 6 extended permit tcp host 192.168.1.177 host 192.168.43.13
(hitcnt=0, 0, 0, 0, 0) 0x1e68697c
access-list 101 line 7 extended permit tcp host 192.168.1.177 host 192.168.43.132
(hitcnt=2, 0, 0, 1, 1) 0xc1ce5c49
access-list 101 line 8 extended permit tcp host 192.168.1.177 host 192.168.43.192
(hitcnt=3, 0, 1, 1, 1) 0xb6f59512
access-list 101 line 9 extended permit tcp host 192.168.1.177 host 192.168.43.44
(hitcnt=0, 0, 0, 0, 0) 0xdc104200
access-list 101 line 10 extended permit tcp host 192.168.1.112 host 192.168.43.44
(hitcnt=429, 109, 107, 109, 104)
0xce4f281d
access-list 101 line 11 extended permit tcp host 192.168.1.170 host 192.168.43.238
(hitcnt=3, 1, 0, 0, 2) 0x4143a818
access-list 101 line 12 extended permit tcp host 192.168.1.170 host 192.168.43.169
(hitcnt=2, 0, 1, 0, 1) 0xb18dfea4
access-list 101 line 13 extended permit tcp host 192.168.1.170 host 192.168.43.229
(hitcnt=1, 1, 0, 0, 0) 0x21557d71
access-list 101 line 14 extended permit tcp host 192.168.1.170 host 192.168.43.106
(hitcnt=0, 0, 0, 0, 0) 0x7316e016
access-list 101 line 15 extended permit tcp host 192.168.1.170 host 192.168.43.196
(hitcnt=0, 0, 0, 0, 0) 0x013fd5b8
access-list 101 line 16 extended permit tcp host 192.168.1.170 host 192.168.43.75
(hitcnt=0, 0, 0, 0, 0) 0x2c7dba0d
```

To display the aggregated count of in-use connections for all units, enter:

```
hostname# show cluster conn count
Usage Summary In Cluster:*********************************************
  200 in use (cluster-wide aggregated)
     cl2(LOCAL):*************************************************************
  100 in use, 100 most used

  cl1:*************************************************************
  100 in use, 100 most used
```

Related Commands

Command	Description
show cluster info	Shows cluster information.
show cluster user-identity	Shows cluster user identity information and statistics.

show cluster info

To view cluster information, use the **show cluster info** command in privileged EXEC mode.

show cluster info [**clients | conn-distribution | goid** [*options*] **| health | incompatible-config | loadbalance | old-members | packet-distribution | trace** [*options*] **| transport {asp | cp}**]

Syntax Description

clients	(Optional) Shows the version of register clients.
conn-distribution	(Optional) Shows the connection distribution in the cluster.
goid [*options*]	(Optional) Shows the global object ID database. Options include: • **classmap** • **conn-set** • **hwidb** • **idfw-domain** • **idfw-group** • **interface** • **policymap** • **virtual-context**
health	(Optional) Shows health monitoring information.
incompatible-config	(Optional) Shows commands that are incompatible with clustering in the current running configuration. This command is useful before you enable clustering.
loadbalance	(Optional) Shows load balancing information.
old-members	(Optional) Shows former members of the cluster.
packet-distribution	(Optional) Shows packet distribution in the cluster.
trace [*options*]	(Optional) Shows the clustering control module event trace. Options include: • **latest** [*number*]—Displays the latest *number* events, where the number is from 1 to 2147483647. The default is to show all. • **level** *level*—Filters events by level where the *level* is one of the following: **all**, **critical**, **debug**, **informational**, or **warning**. • **module** *module*—Filters events by module where the *module* is one of the following: **ccp**, **datapath**, **fsm**, **general**, **hc**, **license**, **rpc**, **or transport**. • **time** {[*month day*] [*hh*:*mm*:*ss*]}—Shows events before the specified time or date.
transport {asp | cp}	(Optional) Show transport related statistics for the following: • **asp**—Data plane transport statistics. • **cp**—Control plane transport statistics.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

If you do not specify any options, the **show cluster info** command shows general cluster information including the cluster name and status, the cluster members, the member states, and so on.

Clear statistics using the **clear cluster info** command.

See also the **show cluster** and **show cluster user-identity** commands.

Examples

The following is sample output from the **show cluster info** command:

```
hostname# show cluster info
Cluster stbu: On
  This is "C" in state SLAVE
      ID        : 0
      Version   : 100.8(0.52)
      Serial No.: P3000000025
      CCL IP    : 10.0.0.3
      CCL MAC   : 000b.fcf8.c192
      Last join : 17:08:59 UTC Sep 26 2011
      Last leave: N/A
Other members in the cluster:
  Unit "D" in state SLAVE
      ID        : 1
      Version   : 100.8(0.52)
      Serial No.: P3000000001
      CCL IP    : 10.0.0.4
      CCL MAC   : 000b.fcf8.c162
      Last join : 19:13:11 UTC Sep 23 2011
      Last leave: N/A
  Unit "A" in state MASTER
      ID        : 2
      Version   : 100.8(0.52)
      Serial No.: JAB0815R0JY
      CCL IP    : 10.0.0.1
      CCL MAC   : 000f.f775.541e
      Last join : 19:13:20 UTC Sep 23 2011
      Last leave: N/A
  Unit "B" in state SLAVE
      ID        : 3
      Version   : 100.8(0.52)
      Serial No.: P3000000191
      CCL IP    : 10.0.0.2
      CCL MAC   : 000b.fcf8.c61e
      Last join : 19:13:50 UTC Sep 23 2011
      Last leave: 19:13:36 UTC Sep 23 2011
```

The following is sample output from the **show cluster info incompatible-config** command:

```
hostname(cfg-cluster)# show cluster info incompatible-config
INFO: Clustering is not compatible with following commands which given a user's
confirmation upon enabling clustering, can be removed automatically from running-config.
policy-map global_policy
 class scansafe-http
  inspect scansafe http-map fail-close
policy-map global_policy
 class scansafe-https
  inspect scansafe https-map fail-close

INFO: No manually-correctable incompatible configuration is found.
```

The following is sample output from the **show cluster info trace** command:

```
hostname# show cluster info trace
 Feb 02 14:19:47.456 [DBUG]Receive CCP message: CCP_MSG_LOAD_BALANCE
 Feb 02 14:19:47.456 [DBUG]Receive CCP message: CCP_MSG_LOAD_BALANCE
 Feb 02 14:19:47.456 [DBUG]Send CCP message to all: CCP_MSG_KEEPALIVE from 80-1 at MASTER
```

Related Commands

Command	Description
show cluster	Displays aggregated data for the entire cluster.
show cluster user-identity	Shows cluster user identity information and statistics.

show cluster user-identity

To view cluster-wide user identity information and statistics, use the **show cluster user-identity** command in privileged EXEC mode.

show cluster user-identity {**statistics** [**user** *name* | **user-group** *group_name*] | **user** [**active** [**domain** *name*] | **user** *name* | **user-group** *group_name*] [**list** [*detail*] | **all** [**list** [*detail*] | **inactive** {**domain** *name* | **user-group** *group_name*] [**list** [*detail*]]}

Syntax Description

active	Shows users with active IP-user mappings.
all	Shows all users in the user database.
domain *name*	Shows user info for a domain.
inactive	Shows users with inactive IP-user mappings.
list [*detail*]	Shows a list of users.
statistics	Shows cluster user identity statistics.
user	Shows the user database.
user *name*	Show information for a specific user.
user-group *group_name*	Shows information for each user of a specific group.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

See also the **show cluster info** and **show cluster** commands.

Related Commands

Command	Description
show cluster	Displays aggregated data for the entire cluster.
show cluster info	Shows cluster information.

show compression svc

To view compression statistics for SVC connections on the ASA, use the **show compression svc** command from privileged EXEC mode.

show compression svc

Defaults

There is no default behavior for this command.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•		—

Command History

Release	Modification
7.1(1)	This command was introduced.

Examples

The following example shows the output of the **show compression svc** command:

```
hostname# show compression svc
Compression SVC Sessions                        1
Compressed Frames                          249756
Compressed Data In (bytes)                0048042
Compressed Data Out (bytes)               4859704
Expanded Frames                                 1
Compression Errors                              0
Compression Resets                              0
Compression Output Buf Too Small                0
Compression Ratio                            2.06
Decompressed Frames                        876687
Decompressed Data In                     279300233
```

Related Commands

Command	Description
compression	Enables compression for all SVC and WebVPN connections.
svc compression	Enables compression of http data over an SVC connection for a specific group or user.

show configuration

To display the configuration that is saved in flash memory on the ASA, use the **show configuration** command in privileged EXEC mode.

show configuration

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was modified.

Usage Guidelines

The **show configuration** command displays the saved configuration in flash memory on the ASA. Unlike the **show running-config** command, the **show configuration** command does not use many CPU resources to run.

To display the active configuration in memory (including saved configuration changes) on the ASA, use the **show running-config** command.

Examples

The following is sample output from the **show configuration** command:

```
hostname# show configuration
: enable password 8Ry2YjIyt7RRXU24 encrypted
names
dns-guard
!
interface Ethernet0/0
 nameif inside
 security-level 100
 ip address 192.168.2.5 255.255.255.0
!
interface Ethernet0/1
 nameif outside
 security-level 0
 ip address 10.132.12.6 255.255.255.0
!
interface Ethernet0/2
 nameif dmz
```

```
 security-level 50
 ip address 10.0.0.5 255.255.0.0
!
interface Ethernet0/3
 shutdown
 no nameif
 no security-level
 no ip address
!
interface Management0/0
 nameif management
 security-level 100
 ip address 192.168.1.1 255.255.255.0
 management-only
!
passwd 2KFQnbNIdI.2KYOU encrypted
boot system disk0:/newImage
ftp mode passive
access-list acl1 extended permit ip any any
access-list mgcpacl extended permit udp any any eq 2727
access-list mgcpacl extended permit udp any any eq 2427
access-list mgcpacl extended permit udp any any eq tftp
access-list mgcpacl extended permit udp any any eq 1719
access-list permitIp extended permit ip any any
pager lines 25
logging enable
logging console debugging
logging buffered debugging
logging asdm informational
mtu inside 1500
mtu outside 1500
mtu dmz 1500
mtu management 1500
icmp unreachable rate-limit 1 burst-size 1
icmp permit any inside
icmp permit any outside
icmp permit any dmz
asdm image disk0:/pdm
no asdm history enable
arp timeout 14400
global (outside) 1 10.132.12.50-10.132.12.52
global (outside) 1 interface
global (dmz) 1 interface
nat (inside) 1 0.0.0.0 0.0.0.0
access-group permitIp in interface inside
access-group permitIp in interface outside
access-group mgcpacl in interface dmz
!
router ospf 1
 network 10.0.0.0 255.255.0.0 area 192.168.2.0
 network 192.168.2.0 255.255.255.0 area 192.168.2.0
 log-adj-changes
 redistribute static subnets
 default-information originate
!
route outside 0.0.0.0 0.0.0.0 10.132.12.1 1
route outside 10.129.0.0 255.255.0.0 10.132.12.1 1
route outside 88.0.0.0 255.0.0.0 10.132.12.1 1
timeout xlate 3:00:00
timeout conn 1:00:00 half-closed 0:10:00 udp 0:02:00 icmp 0:00:02
timeout sunrpc 0:10:00 h323 0:05:00 h225 1:00:00 mgcp 0:05:00 mgcp-pat 0:05:00
timeout sip 0:30:00 sip_media 0:02:00 sip-invite 0:03:00 sip-disconnect 0:02:00
timeout uauth 0:05:00 absolute
dynamic-access-policy-record DfltAccessPolicy
```

```
aaa authentication ssh console LOCAL
http server enable
http 10.132.12.0 255.255.255.0 outside
http 192.168.2.0 255.255.255.0 inside
http 192.168.1.0 255.255.255.0 management
no snmp-server location
no snmp-server contact
snmp-server enable traps snmp authentication linkup linkdown coldstart
telnet 192.168.2.0 255.255.255.0 inside
telnet 10.132.12.0 255.255.255.0 outside
telnet timeout 5
ssh 192.168.2.0 255.255.255.0 inside
ssh timeout 5
console timeout 0
dhcpd address 192.168.1.2-192.168.1.254 management
dhcpd enable management
!
threat-detection basic-threat
threat-detection statistics access-list
!
class-map inspection_default
 match default-inspection-traffic
!
!
policy-map type inspect dns preset_dns_map
 parameters
  message-length maximum 512
policy-map global_policy
 class inspection_default
  inspect dns preset_dns_map
  inspect ftp
  inspect h323 h225
  inspect h323 ras
  inspect rsh
  inspect rtsp
  inspect esmtp
  inspect sqlnet
  inspect skinny
  inspect sunrpc
  inspect xdmcp
  inspect sip
  inspect netbios
  inspect tftp
  inspect mgcp
policy-map type inspect mgcp mgcpapp
 parameters
  call-agent 150.0.0.210 101
  gateway 50.0.0.201 101
  gateway 100.0.0.201 101
  command-queue 150
!
service-policy global_policy global
webvpn
 memory-size percent 25
 enable inside
 internal-password enable
 onscreen-keyboard logon
username snoopy password /JcYsjvxHfBHc4ZK encrypted
prompt hostname context
Cryptochecksum:62bf8f5de9466cdb64fe758079594635:
end
```

Related Commands

Command	Description
configure	Configures the ASA from the terminal.

show conn

To display the connection state for the designated connection type, use the **show conn** command in privileged EXEC mode. This command supports IPv4 and IPv6 addresses.

show conn [**count** | [**all**] [**detail**] [**long**] [**state** *state_type*] [**protocol** {**tcp** | **udp**}] [**scansafe**] [**address** *src_ip*[**-***src_ip*] [**netmask** *mask*]] [**port** *src_port*[**-***src_port*]] [**address** *dest_ip*[**-***dest_ip*] [**netmask** *mask*]] [**port** *dest_port*[**-***dest_port*]] [**user-identity** | **user** [*domain_nickname*\]*user_name* | **user-group** [*domain_nickname*\\]*user_group_name*] | **security-group**]

Syntax Description

address	(Optional) Displays connections with the specified source or destination IP address.
all	(Optional) Displays connections that are to the device or from the device, in addition to through-traffic connections.
count	(Optional) Displays the number of active connections.
dest_ip	(Optional) Specifies the destination IP address (IPv4 or IPv6). To specify a range, separate the IP addresses with a dash (-). For example: `10.1.1.1-10.1.1.5`
dest_port	(Optional) Specifies the destination port number. To specify a range, separate the port numbers with a dash (-). For example: `1000-2000`
detail	(Optional) Displays connections in detail, including translation type and interface information.
long	(Optional) Displays connections in long format.
netmask *mask*	(Optional) Specifies a subnet mask for use with the given IP address.
port	(Optional) Displays connections with the specified source or destination port.
protocol {**tcp** | **udp**}	(Optional) Specifies the connection protocol, which can be **tcp** or **udp**.
scansafe	(Optional) Shows connections being forwarded to the Cloud Web Security server.
security-group	(Optional) Specifies that all connections displayed belong to the specified security group.
src_ip	(Optional) Specifies the source IP address (IPv4 or IPv6). To specify a range, separate the IP addresses with a dash (-). For example: `10.1.1.1-10.1.1.5`
src_port	(Optional) Specifies the source port number. To specify a range, separate the port numbers with a dash (-). For example: `1000-2000`
state *state_type*	(Optional) Specifies the connection state type. See Table 46-5 for a list of the keywords available for connection state types.
user [*domain_nickname*\] *user_name*	(Optional) Specifies that all connections displayed belong to the specified user. When you do not include the *domain_nickname* argument, the ASA displays information for the user in the default domain.

user-group [*domain_nickname*\\] *user_group_name*	(Optional) Specifies that all connections displayed belong to the specified user group. When you do not include the *domain_nickname* argument, the ASA displays information for the user group in the default domain.
user-identity	(Optional) Specifies that the ASA display all connections for the Identity Firewall feature. When displaying the connections, the ASA displays the user name and IP address when it identifies a matching user. Similarly, the ASA displays the host name and an IP address when it identifies a matching host.

Defaults

All through connections are shown by default. You need to use the **all** keyword to also view management connections to the device.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(8)/7.2(4)/8.0(4)	The syntax was simplified to use source and destination concepts instead of “local” and “foreign.” In the new syntax, the source address is the first address entered and the destination is the second address. The old syntax used keywords like **foreign** and **fport** to determine the destination address and port.
7.2(5)/8.0(5)/8.1(2)/8.2(4)/ 8.3(2)	The **tcp_embryonic** state type was added. This type shows all TCP connections with the i flag (incomplete connections); i flag connections for UDP are not shown.
8.2(1)	The b flag was added for TCP state bypass.
8.4(2)	Added the **user-identity**, **user**, and **user-group** keywords to support the Identity Firewall.
9.0(1)	Support for clustering was added. We added the **scansafe** and **security-group** keywords.

Usage Guidelines

The **show conn** command displays the number of active TCP and UDP connections, and provides information about connections of various types. Use the **show conn all** command to see the entire table of connections.

Note When the ASA creates a pinhole to allow secondary connections, this is shown as an incomplete conn by the **show conn** command. To clear this incomplete conn use the **clear conn** command.

The connection types that you can specify using the **show conn state** command are defined in Table 46-5. When specifying multiple connection types, use commas without spaces to separate the keywords.

Table 46-5 Connection State Types

Keyword	Connection Type Displayed
up	Connections in the up state.
conn_inbound	Inbound connections.
ctiqbe	CTIQBE connections
data_in	Inbound data connections.
data_out	Outbound data connections.
finin	FIN inbound connections.
finout	FIN outbound connections.
h225	H.225 connections
h323	H.323 connections
http_get	HTTP get connections.
mgcp	MGCP connections.
nojava	Connections that deny access to Java applets.
rpc	RPC connections.
service_module	Connections being scanned by an SSM.
sip	SIP connections.
skinny	SCCP connections.
smtp_data	SMTP mail data connections.
sqlnet_fixup_data	SQL*Net data inspection engine connections.
tcp_embryonic	TCP embryonic connections.
vpn_orphan	Orphaned VPN tunneled flows.

When you use the **detail** option, the system displays information about the translation type and interface information using the connection flags defined in Table 46-6.

Table 46-6 Connection Flags

Flag	Description
a	awaiting outside ACK to SYN
A	awaiting inside ACK to SYN
b	TCP state bypass
B	initial SYN from outside
C	Computer Telephony Interface Quick Buffer Encoding (CTIQBE) media connection
d	dump
D	DNS

Table 46-6 Connection Flags (continued)

Flag	Description
E	outside back connection. This is a secondary data connection that must be initiated from the inside host. For example, using FTP, after the inside client issues the PASV command and the outside server accepts, the ASA preallocates an outside back connection with this flag set. If the inside client attempts to connect back to the server, then the ASA denies this connection attempt. Only the outside server can use the preallocated secondary connection.
f	inside FIN
F	outside FIN
g	Media Gateway Control Protocol (MGCP) connection
G	connection is part of a group[1]
h	H.225
H	H.323
i	incomplete TCP or UDP connection
I	inbound data
k	Skinny Client Control Protocol (SCCP) media connection
K	GTP t3-response
m	SIP media connection
M	SMTP data
O	outbound data
p	replicated (unused)
P	inside back connection. This is a secondary data connection that must be initiated from the inside host. For example, using FTP, after the inside client issues the PORT command and the outside server accepts, the ASA preallocates an inside back connection with this flag set. If the outside server attempts to connect back to the client, then the ASA denies this connection attempt. Only the inside client can use the preallocated secondary connection.
q	SQL*Net data
r	inside acknowledged FIN
R	outside acknowledged FIN for TCP connection
R	UDP RPC[2]
s	awaiting outside SYN
S	awaiting inside SYN
t	SIP transient connection[3]
T	SIP connection[4]
U	up
V	VPN orphan
W	WAAS
X	Inspected by the service module, such as a CSC SSM.
y	For clustering, identifies a backup owner flow.
Y	For clustering, identifies a director flow.

Table 46-6 Connection Flags (continued)

Flag	Description
z	For clustering, identifies a forwarder flow.
Z	Cloud Web Security

1. The G flag indicates the connection is part of a group. It is set by the GRE and FTP Strict fixups to designate the control connection and all its associated secondary connections. If the control connection terminates, then all associated secondary connections are also terminated.
2. Because each row of **show conn** command output represents one connection (TCP or UDP), there will be only one R flag per row.
3. For UDP connections, the value t indicates that it will timeout after one minute.
4. For UDP connections, the value T indicates that the connection will timeout according to the value specified using the **timeout sip** command.

Note For connections using a DNS server, the source port of the connection may be replaced by the *IP address of DNS server* in the **show conn** command output.

A single connection is created for multiple DNS sessions, as long as they are between the same two hosts, and the sessions have the same 5-tuple (source/destination IP address, source/destination port, and protocol). DNS identification is tracked by *app_id*, and the idle timer for each app_id runs independently.

Because the app_id expires independently, a legitimate DNS response can only pass through the ASA within a limited period of time and there is no resource build-up. However, when you enter the **show conn** command, you will see the idle timer of a DNS connection being reset by a new DNS session. This is due to the nature of the shared DNS connection and is by design.

Note When there is no TCP traffic for the period of inactivity defined by the **timeout conn** command (by default, 1:00:00), the connection is closed and the corresponding conn flag entries are no longer displayed.

If a LAN-to-LAN/Network-Extension Mode tunnel drops and does not come back, there might be a number of orphaned tunnel flows. These flows are not torn down as a result of the tunnel going down, but all the data attempting to flow through them is dropped. The **show conn** command output shows these orphaned flows with the **V** flag.

When the following TCP connection directionality flags are applied to connections between same-security interfaces (see the **same-security permit** command), the direction in the flag is not relevant because for same-security interfaces, there is no “inside” or “outside.” Because the ASA has to use these flags for same-security connections, the ASA may choose one flag over another (for example, f vs. F) based on other connection characteristics, but you should ignore the directionality chosen.

- B—Initial SYN from outside
- a—Awaiting outside ACK to SYN
- A—Awaiting inside ACK to SYN
- f—Inside FIN
- F—Outside FIN
- s—Awaiting outside SYN
- S—Awaiting inside SYN

To display information for a specific connection, include the **security-group** keyword and specify a security group table value or security group name for both the source and destination of the connection. The ASA displays the connection matching the specific security group table values or security group names.

When you specify the **security-group** keyword without specifying a source and destination security group table value or a source and destination security group name, the ASA displays data for all SXP connections.

The ASA displays the connection data in the format *security_group_name* (*SGT_value*) or just as the *SGT_value* when the security group name is unknown.

Note Security group data is not available for stub connections because stub connection do not go through the slow path. Stub connections maintain only the information necessary to forward packets to the owner of the connection.

You can specify a single security group name to display all connections in a cluster; for example, the following example displays connections matching security-group mktg in all units of the cluster:

```
hostname# show cluster conn security-group name mktg
```

Examples

When specifying multiple connection types, use commas without spaces to separate the keywords. The following example displays information about RPC, H.323, and SIP connections in the Up state:

```
hostname# show conn state up,rpc,h323,sip
```

The following is sample output from the **show conn count** command:

```
hostname# show conn count
54 in use, 123 most used
```

The following is sample output from the **show conn** command. This example shows a TCP session connection from inside host 10.1.1.15 to the outside Telnet server at 10.10.49.10. Because there is no B flag, the connection is initiated from the inside. The “U”, “I”, and “O” flags denote that the connection is active and has received inbound and outbound data.

```
hostname# show conn
54 in use, 123 most used
TCP out 10.10.49.10:23 in 10.1.1.15:1026 idle 0:00:22, bytes 1774, flags UIO
UDP out 10.10.49.10:31649 in 10.1.1.15:1028 idle 0:00:14, bytes 0, flags D-
TCP dmz 10.10.10.50:50026 inside 192.168.1.22:5060, idle 0:00:24, bytes 1940435, flags
UTIOB
TCP dmz 10.10.10.50:49764 inside 192.168.1.21:5060, idle 0:00:42, bytes 2328346, flags
UTIOB
TCP dmz 10.10.10.51:50196 inside 192.168.1.22:2000, idle 0:00:04, bytes 31464, flags UIB
TCP dmz 10.10.10.51:52738 inside 192.168.1.21:2000, idle 0:00:09, bytes 129156, flags UIOB
TCP dmz 10.10.10.50:49764 inside 192.168.1.21:0, idle 0:00:42, bytes 0, flags Ti
TCP outside 192.168.1.10(20.20.20.24):49736 inside 192.168.1.21:0, idle 0:01:32, bytes 0,
flags Ti
TCP dmz 10.10.10.50:50026 inside 192.168.1.22:0, idle 0:00:24, bytes 0, flags Ti
TCP outside 192.168.1.10(20.20.20.24):50663 inside 192.168.1.22:0, idle 0:01:34, bytes 0,
flags Ti
TCP dmz 10.10.10.50:50026 inside 192.168.1.22:0, idle 0:02:24, bytes 0, flags Ti
TCP outside 192.168.1.10(20.20.20.24):50663 inside 192.168.1.22:0, idle 0:03:34, bytes 0,
flags Ti
TCP dmz 10.10.10.50:50026 inside 192.168.1.22:0, idle 0:04:24, bytes 0, flags Ti
TCP outside 192.168.1.10(20.20.20.24):50663 inside 192.168.1.22:0, idle 0:05:34, bytes 0,
flags Ti
```

```
TCP dmz 10.10.10.50:50026 inside 192.168.1.22:0, idle 0:06:24, bytes 0, flags Ti
TCP outside 192.168.1.10(20.20.20.24):50663 inside 192.168.1.22:0, idle 0:07:34, bytes 0,
flags Ti
```

The following is sample output from the **show conn** command, whcih includes the "X" flag to indicate that the connection is being scanned by the SSM.

```
hostname# show conn address 10.0.0.122 state service_module
TCP out 10.1.0.121:22 in 10.0.0.122:34446 idle 0:00:03, bytes 2733, flags UIOX
```

The following is sample output from the **show conn detail** command. This example shows a UDP connection from outside host 10.10.49.10 to inside host 10.1.1.15. The D flag denotes that this is a DNS connection. The number 1028 is the DNS ID over the connection.

```
hostname# show conn detail
54 in use, 123 most used
Flags: A - awaiting inside ACK to SYN, a - awaiting outside ACK to SYN,
       B - initial SYN from outside, b - TCP state-bypass or nailed, C - CTIQBE media,
       D - DNS, d - dump, E - outside back connection, F - outside FIN, f - inside FIN,
       G - group, g - MGCP, H - H.323, h - H.225.0, I - inbound data,
       i - incomplete, J - GTP, j - GTP data, K - GTP t3-response
       k - Skinny media, M - SMTP data, m - SIP media, n - GUP
       O - outbound data, P - inside back connection, p - Phone-proxy TFTP connection,
       q - SQL*Net data, R - outside acknowledged FIN,
       R - UDP SUNRPC, r - inside acknowledged FIN, S - awaiting inside SYN,
       s - awaiting outside SYN, T - SIP, t - SIP transient, U - up,
       V - VPN orphan, W - WAAS,
       X - inspected by service module
TCP outside:10.10.49.10/23 inside:10.1.1.15/1026,
    flags UIO, idle 39s, uptime 1D19h, timeout 1h0m, bytes 1940435
UDP outside:10.10.49.10/31649 inside:10.1.1.15/1028,
    flags dD, idle 39s, uptime 1D19h, timeout 1h0m, bytes 1940435
TCP dmz:10.10.10.50/50026 inside:192.168.1.22/5060,
    flags UTIOB, idle 39s, uptime 1D19h, timeout 1h0m, bytes 1940435
TCP dmz:10.10.10.50/49764 inside:192.168.1.21/5060,
    flags UTIOB, idle 56s, uptime 1D19h, timeout 1h0m, bytes 2328346
TCP dmz:10.10.10.51/50196 inside:192.168.1.22/2000,
    flags UIB, idle 18s, uptime 1D19h, timeout 1h0m, bytes 31464
TCP dmz:10.10.10.51/52738 inside:192.168.1.21/2000,
    flags UIOB, idle 23s, uptime 1D19h, timeout 1h0m, bytes 129156
TCP outside:10.132.64.166/52510 inside:192.168.1.35/2000,
    flags UIOB, idle 3s, uptime 1D21h, timeout 1h0m, bytes 357405
TCP outside:10.132.64.81/5321 inside:192.168.1.22/5060,
    flags UTIOB, idle 1m48s, uptime 1D21h, timeout 1h0m, bytes 2083129
TCP outside:10.132.64.81/5320 inside:192.168.1.21/5060,
    flags UTIOB, idle 1m46s, uptime 1D21h, timeout 1h0m, bytes 2500529
TCP outside:10.132.64.81/5319 inside:192.168.1.22/2000,
    flags UIOB, idle 31s, uptime 1D21h, timeout 1h0m, bytes 32718
TCP outside:10.132.64.81/5315 inside:192.168.1.21/2000,
    flags UIOB, idle 14s, uptime 1D21h, timeout 1h0m, bytes 358694
TCP outside:10.132.64.80/52596 inside:192.168.1.22/2000,
    flags UIOB, idle 8s, uptime 1D21h, timeout 1h0m, bytes 32742
TCP outside:10.132.64.80/52834 inside:192.168.1.21/2000,
    flags UIOB, idle 6s, uptime 1D21h, timeout 1h0m, bytes 358582
TCP outside:10.132.64.167/50250 inside:192.168.1.35/2000,
    flags UIOB, idle 26s, uptime 1D21h, timeout 1h0m, bytes 375617
```

The following is sample output from the **show conn** command when an orphan flow exists, as indicated by the **V** flag:

```
hostname# show conn
16 in use, 19 most used
TCP out 192.168.110.251:7393 in 192.168.150.252:21 idle 0:00:00, bytes 1048, flags UOVB
TCP out 192.168.110.251:21137 in 192.168.150.252:21 idle 0:00:00, bytes 1048, flags UIOB
```

To limit the report to those connections that have orphan flows, add the **vpn_orphan** option to the **show conn state** command, as in the following example:

```
hostname# show conn state vpn_orphan
14 in use, 19 most used
TCP out 192.168.110.251:7393 in 192.168.150.252:5013, idle 0:00:00, bytes 2841019, flags
UOVB
```

For clustering, to troubleshoot the connection flow, first see connections on all units by entering the **cluster exec show conn** command on the master unit. Look for flows that have the following flags: director (Y), backup (y), and forwarder (z). The following example shows an SSH connection from 172.18.124.187:22 to 192.168.103.131:44727 on all three ASAs; ASA 1 has the z flag showing it is a forwarder for the connection, ASA3 has the Y flag showing it is the director for the connection, and ASA2 has no special flags showing it is the owner. In the outbound direction, the packets for this connection enter the inside interface on ASA2 and exit the outside interface. In the inbound direction, the packets for this connection enter the outside interface on ASA 1 and ASA3, are forwarded over the cluster control link to ASA2, and then exit the inside interface on ASA2.

```
hostname/ASA1/master# cluster exec show conn
ASA1(LOCAL):**********************************************************
18 in use, 22 most used
Cluster stub connections: 0 in use, 5 most used
TCP outside  172.18.124.187:22 inside  192.168.103.131:44727, idle 0:00:00, bytes
37240828, flags z


ASA2:**********************************************************************
12 in use, 13 most used
Cluster stub connections: 0 in use, 46 most used
TCP outside  172.18.124.187:22 inside  192.168.103.131:44727, idle 0:00:00, bytes
37240828, flags UIO


ASA3:**********************************************************************
10 in use, 12 most used
Cluster stub connections: 2 in use, 29 most used
TCP outside  172.18.124.187:22 inside  192.168.103.131:44727, idle 0:00:03, bytes 0, flags
Y
```

The output of **show conn detail** on ASA2 shows that the most recent forwarder was ASA1:

```
hostname/ASA2/slave# show conn detail
12 in use, 13 most used
Cluster stub connections: 0 in use, 46 most used
Flags: A - awaiting inside ACK to SYN, a - awaiting outside ACK to SYN,
       B - initial SYN from outside, b - TCP state-bypass or nailed, C - CTIQBE media,
       D - DNS, d - dump, E - outside back connection, F - outside FIN, f - inside FIN,
       G - group, g - MGCP, H - H.323, h - H.225.0, I - inbound data,
       i - incomplete, J - GTP, j - GTP data, K - GTP t3-response
       k - Skinny media, M - SMTP data, m - SIP media, n - GUP
       O - outbound data, P - inside back connection, p - Phone-proxy TFTP connection,
       q - SQL*Net data, R - outside acknowledged FIN,
       R - UDP SUNRPC, r - inside acknowledged FIN, S - awaiting inside SYN,
       s - awaiting outside SYN, T - SIP, t - SIP transient, U - up,
       V - VPN orphan, W - WAAS, Z - Scansafe redirection,
       X - inspected by service module
       Y - director stub flow
       y - backup stub flow
       z - forwarder stub flow
TCP outside: 172.18.124.187/22 inside: 192.168.103.131/44727,
```

```
    flags UIO , idle 0s, uptime 25s, timeout 1h0m, bytes 1036044, cluster sent/rcvd bytes
0/1032983, cluster sent/rcvd total bytes 0/1080779, owners (1,255)
Traffic received at interface outside
        Locally received: 0 (0 byte/s)
        From most recent forwarder ASA1: 1032983 (41319 byte/s)
Traffic received at interface inside
        Locally received: 3061 (122 byte/s)
```

The following examples show how to display connections for the Identity Firewall feature:

```
hostname# show conn user-identity ?
exec mode commands/options:
  all       Enter this keyword to show conns including to-the-box and from-the-box
  detail    Enter this keyword to show conn in detail
  long      Enter this keyword to show conn in long format
  port      Enter this keyword to specify port
  protocol  Enter this keyword to specify conn protocol
  state     Enter this keyword to specify conn state
  |         Output modifiers

hostname# show conn user-identity
1219 in use, 1904 most used
UDP inside (www.yahoo.com))10.0.0.2:1587 outside (user1)192.0.0.2:30000, idle 0:00:00, bytes 10, flags -
UDP inside (www.yahoo.com)10.0.0.2:1586 outside (user2)192.0.0.1:30000, idle 0:00:00, bytes 10, flags –
UDP inside 10.0.0.34:1586 outside 192.0.0.25:30000, idle 0:00:00, bytes 10, flags –
…
hostname# show conn user user1
2 in use
UDP inside (www.yahoo.com))10.0.0.2:1587 outside (user1)192.0.0.2:30000, idle 0:00:00, bytes 10, flags –
```

Related Commands

Commands	Description
clear conn	Clears connections.
inspect ctiqbe	Enables CTIQBE application inspection.
inspect h323	Enables H.323 application inspection.
inspect mgcp	Enables MGCP application inspection.
inspect sip	Removes Java applets from HTTP traffic.
inspect skinny	Enables SCCP application inspection.

show console-output

To display the currently captured console output, use the **show console-output** command in privileged EXEC mode.

show console-output

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show console-output** command, which displays the following message when there is no console output:

```
hostname# show console-output
Sorry, there are no messages to display
```

Related Commands

Command	Description
clear configure console	Restores the default console connection settings.
clear configure timeout	Restores the default idle time durations in the configuration.
console timeout	Sets the idle timeout for a console connection to the ASA.
show running-config console timeout	Displays the idle timeout for a console connection to the ASA.

show context

To show context information including allocated interfaces and the configuration file URL, the number of contexts configured, or from the system execution space, a list of all contexts, use the **show context** command in privileged EXEC mode.

show context [*name* | **detail** | **count**]

Syntax Description

count	(Optional) Shows the number of contexts configured.
detail	(Optional) Shows additional detail about the context(s) including the running state and information for internal use.
name	(Optional) Sets the context name. If you do not specify a name, the ASA displays all contexts. Within a context, you can only enter the current context name.

Defaults

In the system execution space, the ASA displays all contexts if you do not specify a name.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	—	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.
8.0(2)	Information about assigned IPS virtual sensors was added.

Usage Guidelines

See the “Examples” section for a description of the display output.

Examples

The following is sample output from the **show context** command. The following sample display shows three contexts:

```
hostname# show context

Context Name      Interfaces                    URL
*admin            GigabitEthernet0/1.100        flash:/admin.cfg
                  GigabitEthernet0/1.101
contexta          GigabitEthernet0/1.200        flash:/contexta.cfg
                  GigabitEthernet0/1.201
contextb          GigabitEthernet0/1.300        flash:/contextb.cfg
                  GigabitEthernet0/1.301
Total active Security Contexts: 3
```

Table 46-7 shows each field description.

Table 46-7 show context Fields

Field	Description
Context Name	Lists all context names. The context name with the asterisk (*) is the admin context.
Interfaces	The interfaces assigned to the context.
URL	The URL from which the ASA loads the context configuration.

The following is sample output from the **show context detail** command in the system execution space:

```
hostname# show context detail

Context "admin", has been created, but initial ACL rules not complete
  Config URL: flash:/admin.cfg
  Real Interfaces: Management0/0
  Mapped Interfaces: Management0/0
  Real IPS Sensors: ips1, ips2
  Mapped IPS Sensors: highsec, lowsec
  Flags: 0x00000013, ID: 1

Context "ctx", has been created, but initial ACL rules not complete
  Config URL: ctx.cfg
  Real Interfaces: GigabitEthernet0/0.10, GigabitEthernet0/1.20,
     GigabitEthernet0/2.30
  Mapped Interfaces: int1, int2, int3
  Real IPS Sensors: ips1, ips3
  Mapped IPS Sensors: highsec, lowsec
  Flags: 0x00000011, ID: 2

Context "system", is a system resource
  Config URL: startup-config
  Real Interfaces:
  Mapped Interfaces: Control0/0, GigabitEthernet0/0,
     GigabitEthernet0/0.10, GigabitEthernet0/1, GigabitEthernet0/1.10,
     GigabitEthernet0/1.20, GigabitEthernet0/2, GigabitEthernet0/2.30,
     GigabitEthernet0/3, Management0/0, Management0/0.1
  Flags: 0x00000019, ID: 257

Context "null", is a system resource
  Config URL: ... null ...
  Real Interfaces:
  Mapped Interfaces:
  Flags: 0x00000009, ID: 258
```

Table 46-8 shows each field description.

Table 46-8 Context States

Field	Description
Context	The context name. The null context information is for internal use only. The system context represents the system execution space.
State Message:	The context state. See the possible messages below.
Has been created, but initial ACL rules not complete	The ASA parsed the configuration but has not yet downloaded the default ACLs to establish the default security policy. The default security policy applies to all contexts initially, and includes disallowing traffic from lower security levels to higher security levels, enabling application inspection, and other parameters. This security policy ensures that no traffic can pass through the ASA after the configuration is parsed but before the configuration ACLs are compiled. You are unlikely to see this state because the configuration ACLs are compiled very quickly.
Has been created, but not initialized	You entered the **context** *name* command, but have not yet entered the **config-url** command.
Has been created, but the config hasn't been parsed	The default ACLs were downloaded, but the ASA has not parsed the configuration. This state might exist because the configuration download might have failed because of network connectivity issues, or you have not yet entered the **config-url** command. To reload the configuration, from within the context, enter **copy startup-config running-config**. From the system, reenter the **config-url** command. Alternatively, you can start configuring the blank running configuration.
Is a system resource	This state applies only to the system execution space and to the null context. The null context is used by the system, and the information is for internal use only.
Is a zombie	You deleted the context using the **no context** or **clear context** command, but the context information persists in memory until the ASA reuses the context ID for a new context, or you restart.
Is active	This context is currently running and can pass traffic according to the context configuration security policy.
Is ADMIN and active	This context is the admin context and is currently running.
Was a former ADMIN, but is now a zombie	You deleted the admin context using the **clear configure context** command, but the context information persists in memory until the ASA reuses the context ID for a new context, or you restart.
Real Interfaces	The interfaces assigned to the context. If you mapped the interface IDs in the **allocate-interface** command, this display shows the real name of the interface.
Mapped Interfaces	If you mapped the interface IDs in the **allocate-interface** command, this display shows the mapped names. If you did not map the interfaces, the display lists the real names again.
Real IPS Sensors	The IPS virtual sensors assigned to the context if you have an AIP SSM installed. If you mapped the sensor names in the **allocate-ips** command, this display shows the real name of the sensor.

Table 46-8 Context States (continued)

Field	Description
Mapped IPS Sensors	If you mapped the sensor names in the **allocate-ips** command, this display shows the mapped names. If you did not map the sensor names, the display lists the real names again.
Flag	For internal use only.
ID	An internal ID for this context.

The following is sample output from the **show context count** command:

```
hostname# show context count
Total active contexts: 2
```

Related Commands

Command	Description
admin-context	Sets the admin context.
allocate-interface	Assigns interfaces to a context.
changeto	Changes between contexts or the system execution space.
config-url	Specifies the location of the context configuration.
context	Creates a security context in the system configuration and enters context configuration mode.

show controller

To view controller-specific information of all interfaces present, use the **show controller** command in privileged EXEC mode.

show controller [**slot**] [*physical_interface*] [**pci** [**bridge** [*bridge-id* [*port-num*]]]] [**detail**]

Syntax Description

bridge	(Optional) Displays PCI bridge-specific information for the ASA 5585-X.
bridge-id	(Optional) Displays each unique PCI bridge identifier for the ASA 5585-X.
detail	(Optional) Shows additional detail about the controller.
pci	(Optional) Displays a summary of PCI devices along with their first 256 bytes of PCI configuration space for the ASA 5585-X.
physical_interface	(Optional) Identifies the interface ID.
port-num	(Optional) Displays the unique port number within each PCI bridge for the ASA 5585-X adaptive ASA.
slot	(Optional) Displays PCI-e bus and slot information for the ASA 5580 only.

Defaults

If you do not identify an interface, this command shows information for all interfaces.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.2(1)	This command was introduced.
8.0(2)	This command now applies to all platforms, and not just the ASA 5505. The **detail** keyword was added.
8.1(1)	The **slot** keyword was added for the ASA 5580.
8.2(5)	The **pci**, **bridge**, *bridge-id,* and *port-num* options were added for the ASA 5585-X with an IPS SSP installed. In addition, support for sending pause frames to enable flow control on 1 GigabitEthernet interfaces has been added for all ASA models.
8.6(1)	Support was added for the **detail** keyword for the ASA 5512-X through ASA 5555-X Internal-Control0/0 interface, used for control traffic between the ASA and the software module, and for the Internal-Data0/1 interface used for data traffic to the ASA and the software module.

Usage Guidelines

This command helps Cisco TAC gather useful debug information about the controller when investigating internal and customer found defects. The actual output depends on the model and Ethernet controller. The command also displays information about all the PCI bridges of interest in the ASA 5585-X with an IPS SSP installed. For the ASA Services Module, the **show controller** command output does not show any PCIe slot information.

Examples

The following is sample output from the **show controller** command:

```
hostname# show controller

Ethernet0/0:
   Marvell 88E6095 revision 2, switch port 7
     PHY Register:
         Control:       0x3000  Status:        0x786d
         Identifier1:   0x0141  Identifier2:   0x0c85
         Auto Neg:      0x01e1  LP Ability:    0x40a1
         Auto Neg Ex:   0x0005  PHY Spec Ctrl: 0x0130
         PHY Status:    0x4c00  PHY Intr En:   0x0400
         Int Port Sum:  0x0000  Rcv Err Cnt:   0x0000
         Led select:    0x1a34
         Reg 29:        0x0003  Reg 30:        0x0000
     Port Registers:
         Status:        0x0907  PCS Ctrl:      0x0003
         Identifier:    0x0952  Port Ctrl:     0x0074
         Port Ctrl-1:   0x0000  Vlan Map:      0x077f
         VID and PRI:   0x0001  Port Ctrl-2:   0x0cc8
         Rate Ctrl:     0x0000  Rate Ctrl-2:   0x3000
         Port Asc Vt:   0x0080
         In Discard Lo: 0x0000  In Discard Hi: 0x0000
         In Filtered:   0x0000  Out Filtered:  0x0000

     Global Registers:
         Control:       0x0482

--------------------------------------------------------------------------
Number of VLANs: 1
--------------------------------------------------------------------------
Vlan[db]\Port|  0 |  1 |  2 |  3 |  4 |  5 |  6 |  7 |  8 |  9 | 10 |
--------------------------------------------------------------------------
  <0001[01]> | EUT| EUT| EUT| EUT| EUT| EUT| EUT| EUT| EUM| NM | NM |
--------------------------------------------------------------------------

....

Ethernet0/6:
   Marvell 88E6095 revision 2, switch port 1
     PHY Register:
         Control:       0x3000  Status:        0x7849
         Identifier1:   0x0141  Identifier2:   0x0c85
         Auto Neg:      0x01e1  LP Ability:    0x0000
         Auto Neg Ex:   0x0004  PHY Spec Ctrl: 0x8130
         PHY Status:    0x0040  PHY Intr En:   0x8400
         Int Port Sum:  0x0000  Rcv Err Cnt:   0x0000
         Led select:    0x1a34
         Reg 29:        0x0003  Reg 30:        0x0000
     Port Registers:
         Status:        0x0007  PCS Ctrl:      0x0003
         Identifier:    0x0952  Port Ctrl:     0x0077
         Port Ctrl-1:   0x0000  Vlan Map:      0x07fd
         VID and PRI:   0x0001  Port Ctrl-2:   0x0cc8
         Rate Ctrl:     0x0000  Rate Ctrl-2:   0x3000
```

```
        Port Asc Vt:   0x0002
        In Discard Lo: 0x0000  In Discard Hi: 0x0000
        In Filtered:   0x0000  Out Filtered:  0x0000
   ----Inline power related counters and registers----
   Power on fault: 0  Power off fault: 0
   Detect enable fault: 0  Detect disable fault: 0
   Faults: 0
   Driver counters:
   I2C Read Fail: 0   I2C Write Fail: 0
   Resets: 1  Initialized: 1
   PHY reset error: 0
   LTC4259 registers:
   INTRPT STATUS = 0x88  INTRPT MASK   = 0x00  POWER EVENT   = 0x00
   DETECT EVENT  = 0x03  FAULT EVENT   = 0x00  TSTART EVENT  = 0x00
   SUPPLY EVENT  = 0x02  PORT1 STATUS  = 0x06  PORT2 STATUS  = 0x06
   PORT3 STATUS  = 0x00  PORT4 STATUS  = 0x00  POWER STATUS  = 0x00
   OPERATE MODE  = 0x0f  DISC. ENABLE  = 0x30  DT/CLASS ENBL = 0x33
   TIMING CONFIG = 0x00  MISC. CONFIG  = 0x00

...

Internal-Data0/0:
   Y88ACS06 Register settings:
    rap                          0xe0004000 = 0x00000000
    ctrl_status                  0xe0004004 = 0x5501064a
    irq_src                      0xe0004008 = 0x00000000
    irq_msk                      0xe000400c = 0x00000000
    irq_hw_err_src               0xe0004010 = 0x00000000
    irq_hw_err_msk               0xe0004014 = 0x00001000
    bmu_cs_rxq                   0xe0004060 = 0x002aaa80
    bmu_cs_stxq                  0xe0004068 = 0x01155540
    bmu_cs_atxq                  0xe000406c = 0x012aaa80

   Bank 2: MAC address registers:

....
```

The following is sample output from the **show controller detail** command:

```
hostname# show controller gigabitethernet0/0 detail

GigabitEthernet0/0:
   Intel i82546GB revision 03

     Main Registers:
         Device Control:             0xf8260000 = 0x003c0249
         Device Status:              0xf8260008 = 0x00003347
         Extended Control:           0xf8260018 = 0x000000c0
         RX Config:                  0xf8260180 = 0x0c000000
         TX Config:                  0xf8260178 = 0x000001a0
         RX Control:                 0xf8260100 = 0x04408002
         TX Control:                 0xf8260400 = 0x000400fa
         TX Inter Packet Gap:        0xf8260410 = 0x00602008
         RX Filter Cntlr:            0xf8260150 = 0x00000000
         RX Chksum:                  0xf8265000 = 0x00000300

     RX Descriptor Registers:
         RX Descriptor 0 Cntlr:      0xf8262828 = 0x00010000
         RX Descriptor 0 AddrLo:     0xf8262800 = 0x01985000
         RX Desccriptor 0 AddrHi:    0xf8262804 = 0x00000000
         RX Descriptor 0 Length:     0xf8262808 = 0x00001000
         RX Descriptor 0 Head:       0xf8262810 = 0x00000000
         RX Descriptor 0 Tail:       0xf8262818 = 0x000000ff
         RX Descriptor 1 Cntlr:      0xf8262828 = 0x00010000
```

```
        RX Descriptor 1 AddrLo:     0xf8260138 = 0x00000000
        RX Descriptor 1 AddrHi:     0xf826013c = 0x00000000
        RX Descriptor 1 Length:     0xf8260140 = 0x00000000
        RX Descriptor 1 Head:       0xf8260148 = 0x00000000
        RX Descriptor 1 Tail:       0xf8260150 = 0x00000000

    TX Descriptor Registers:
        TX Descriptor 0 Cntlr:      0xf8263828 = 0x00000000
        TX Descriptor 0 AddrLo:     0xf8263800 = 0x01987000
        TX Descriptor 0 AddrHi:     0xf8263804 = 0x00000000
        TX Descriptor 0 Length:     0xf8263808 = 0x00001000
        TX Descriptor 0 Head:       0xf8263810 = 0x00000000
        TX Descriptor 0 Tail:       0xf8263818 = 0x00000000

    RX Address Array:
        Ethernet Address 0:         0012.d948.ef58
        Ethernet Address 1:         Not Valid!
        Ethernet Address 2:         Not Valid!
        Ethernet Address 3:         Not Valid!
        Ethernet Address 4:         Not Valid!
        Ethernet Address 5:         Not Valid!
        Ethernet Address 6:         Not Valid!
        Ethernet Address 7:         Not Valid!
        Ethernet Address 8:         Not Valid!
        Ethernet Address 9:         Not Valid!
        Ethernet Address a:         Not Valid!
        Ethernet Address b:         Not Valid!
        Ethernet Address c:         Not Valid!
        Ethernet Address d:         Not Valid!
        Ethernet Address e:         Not Valid!
        Ethernet Address f:         Not Valid!

    PHY Registers:
        Phy Control:                0x1140
        Phy Status:                 0x7969
        Phy ID 1:                   0x0141
        Phy ID 2:                   0x0c25
        Phy Autoneg Advertise:      0x01e1
        Phy Link Partner Ability:   0x41e1
        Phy Autoneg Expansion:      0x0007
        Phy Next Page TX:           0x2801
        Phy Link Partnr Next Page:  0x0000
        Phy 1000T Control:          0x0200
        Phy 1000T Status:           0x4000
        Phy Extended Status:        0x3000

    Detailed Output - RX Descriptor Ring:

    rx_bd[000]: baddr      = 0x019823A2, length = 0x0000, status  = 0x00
                pkt chksum = 0x0000,     errors = 0x00,   special = 0x0000
    rx_bd[001]: baddr      = 0x01981A62, length = 0x0000, status  = 0x00
                pkt chksum = 0x0000,     errors = 0x00,   special = 0x0000

   ........
```

The following is sample output from the **show controller detail** command for the Internal interfaces on the ASA 5512-X through ASA 5555-X:

```
hostname# show controller detail

Internal-Control0/0:
   ASA IPS/VM Back Plane TunTap Interface , port id 9
     Major Configuration Parameters
         Device Name           : en_vtun
         Linux Tun/Tap Device  : /dev/net/tun/tap1
```

```
        Num of Transmit Rings : 1
        Num of Receive Rings  : 1
        Ring Size             : 128
        Max Frame Length      : 1550
        Out of Buffer         : 0
        Reset                 : 0
        Drop                  : 0
    Transmit Ring [0]:
        tx_pkts_in_queue      : 0
        tx_pkts               : 176
        tx_bytes              : 9664
    Receive Ring [0]:
        rx_pkts_in_queue      : 0
        rx_pkts               : 0
        rx_bytes              : 0
        rx_drops              : 0

Internal-Data0/1:
   ASA IPS/VM Management Channel TunTap Interface , port id 9
     Major Configuration Parameters
        Device Name           : en_vtun
        Linux Tun/Tap Device  : /dev/net/tun/tap2
        Num of Transmit Rings : 1
        Num of Receive Rings  : 1
        Ring Size             : 128
        Max Frame Length      : 1550
        Out of Buffer         : 0
        Reset                 : 0
        Drop                  : 0
    Transmit Ring [0]:
        tx_pkts_in_queue      : 0
        tx_pkts               : 176
        tx_bytes              : 9664
    Receive Ring [0]:
        rx_pkts_in_queue      : 0
        rx_pkts               : 0
        rx_bytes              : 0
        rx_drops              : 0
```

The following is sample output from the **show controller slot** command:

```
Slot  Card Description                              PCI-e Bandwidth Cap.
----  ----------------                             ---------------------
3.    ASA 5580 2 port 10GE SR Fiber Interface Card   Bus: x4, Card: x8

4.    ASA 5580 4 port GE Copper Interface Card       Bus: x4, Card: x4

5.    ASA 5580 2 port 10GE SR Fiber Interface Card   Bus: x8, Card: x8

6.    ASA 5580 4 port GE Fiber Interface Card        Bus: x4, Card: x4

7.    empty                                          Bus: x8

8.    empty                                          Bus: x8
```

The following is sample output from the **show controller pci** command:

```
hostname# show controller pci

PCI Evaluation Log:
  ------------------------------------------------------------------------
    Empty

  PCI Bus:Device.Function (hex): 00:00.0 Vendor ID: 0x8086 Device ID: 0x3406
```

```
-------------------------------------------------------------------------

  PCI Configuration Space (hex):
  0x00: 86 80 06 34 00 00 10 00 22 00 00 06 10 00 00 00
  0x10: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
  0x20: 00 00 00 00 00 00 00 00 00 00 00 00 86 80 00 00
  0x30: 00 00 00 00 60 00 00 00 00 00 00 00 05 01 00 00
  0x40: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
  0x50: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
  0x60: 05 90 02 01 00 00 00 00 00 00 00 00 00 00 00 00
  0x70: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
  0x80: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
  0x90: 10 e0 42 00 20 80 00 00 00 00 00 00 41 3c 3b 00
  0xa0: 00 00 41 30 00 00 00 00 c0 07 00 01 00 00 00 00
  0xb0: 00 00 00 00 3e 00 00 00 09 00 00 00 00 00 00 00
  0xc0: 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
  0xd0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
  0xe0: 01 00 03 c8 08 00 00 00 00 00 00 00 00 00 00 00
  0xf0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

  Link Capabilities: x4, Gen1
  Link Status: x4, Gen1
```

Related Commands

Command	Description
show interface	Shows the interface statistics.
show tech-support	Shows information so Cisco TAC can diagnose problems.

show coredump filesystem

To show the contents of the coredump filesystem, enter the **show coredump filesystem** command.

show coredump filesystem

Syntax Descriptionn

This command has no arguments or keywords.

Defaults

By default, coredumps are not enabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

This command shows the contents of the coredump filesystem.

Examples

To show the contents of any recent coredumps generated, enter the **show coredump filesystem** command.

```
hostname(config)# show coredump filesystem
Coredump Filesystem Size is 100 MB
Filesystem type is FAT for disk0
Filesystem 1k-blocks Used Available Use% Mounted on
/dev/loop0 102182 75240 26942 74% /mnt/disk0/coredumpfsys
Directory of disk0:/coredumpfsys/
246 -rwx 20205386 19:14:53 Nov 26 2008 core_lina.2008Nov26_191244.203.11.gz
247 -rwx 36707919 19:17:27 Nov 26 2008 core_lina.2008Nov26_191456.203.6.gz
```

Related Commands

Command	Description
coredump enable	Enables the coredump feature.
clear configure coredump	Removes any coredumps currently stored on the coredump filesystem and clears the coredump log. Does not touch the coredump filesystem itself and does not change or affect the coredump configuration.

Command	Description
clear coredump	Removes any coredumps currently stored on the coredump filesystem and clears the coredump log. Does not touch the coredump filesystem itself and does not change/effect the coredump configuration.
show coredump log	Shows the coredump log.

show coredump log

To show the contents of the coredump log, newest first, enter the **show coredump log** command. To show the contents of the coredump log, oldest first, enter the **show coredump log reverse** command.

show coredump log

show coredump log [**reverse**]

Syntax Description

reverse	Shows the oldest coredump log.

Defaults

By default, coredumps are not enabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

This command displays the contents of the coredump log. The logs should reflect what is currently on the disk.

Examples

The following example shows the output from these commands:

```
hostname(config)# show coredump log
[ 1 ] Wed Feb 18 22:12:09 2009: Coredump completed for module 'lina', coredump file
'core_lina.2009Feb18_221032.203.6.gz', size 971722752 bytes, compressed size 21293688
[ 2 ] Wed Feb 18 22:11:01 2009: Filesystem full on 'disk0', removing module coredump
record 'core_lina.2009Feb18_213558.203.11.gz'
[ 3 ] Wed Feb 18 22:10:32 2009: Coredump started for module 'lina', generating coredump
file 'core_lina.2009Feb18_221032.203.6.gz' on 'disk0'
[ 4 ] Wed Feb 18 21:37:35 2009: Coredump completed for module 'lina', coredump file
'core_lina.2009Feb18_213558.203.11.gz', size 971722752 bytes, compressed size 21286383
[ 5 ] Wed Feb 18 21:35:58 2009: Coredump started for module 'lina', generating coredump
file 'core_lina.2009Feb18_213558.203.11.gz' on 'disk0'
```

Note The older coredump file is deleted to make room for the new coredump. This is done automatically by the ASA in the event the coredump filesystem fills and room is needed for the current coredump. This is why it is imperative to archive coredumps as soon as possible, to insure they don't get overwritten in the event of a crash.

```
hostname(config)# show coredump log reverse
[ 1 ] Wed Feb 18 21:35:58 2009: Coredump started for module 'lina', generating coredump
file 'core_lina.2009Feb18_213558.203.11.gz' on 'disk0''
[ 2 ] Wed Feb 18 21:37:35 2009: Coredump completed for module 'lina', coredump file
'core_lina.2009Feb18_213558.203.11.gz', size 971722752 bytes, compressed size 21286383
[ 3 ] Wed Feb 18 22:10:32 2009: Coredump started for module 'lina', generating coredump
file 'core_lina.2009Feb18_221032.203.6.gz' on 'disk0'
[ 4 ] Wed Feb 18 22:11:01 2009: Filesystem full on 'disk0', removing module coredump
record 'core_lina.2009Feb18_213558.203.11.gz'
[ 5 ] Wed Feb 18 22:12:09 2009: Coredump completed for module 'lina', coredump file
'core_lina.2009Feb18_221032.203.6.gz', size 971722752 bytes, compressed size 21293688
```

Related Commands

Command	Description
coredump enable	Enables the coredump feature.
clear configure coredump	Removes any coredumps currently stored on the coredump filesystem and clears the coredump log. Does not touch the coredump filesystem itself and does not change/effect the coredump configuration.
clear coredump	Removes any coredumps currently stored on the coredump filesystem and clears the coredump log. Does not touch the coredump filesystem itself and does not change or affect the coredump configuration.
show coredump filesystem	Shows the contents of the coredump filesystem.

show counters

To display the protocol stack counters, use the **show counters** command in privileged EXEC mode.

show counters [all | context *context-name* **| summary | top** *N* **] [detail] [protocol** *protocol_name* **[:***counter_name***]] [threshold** *N***]**

Syntax Description

all	Displays the filter details.
context *context-name*	Specifies the context name.
:*counter_name*	Specifies a counter by name.
detail	Displays additional counters information.
protocol *protocol_name*	Displays the counters for the specified protocol.
summary	Displays a counter summary.
threshold *N*	Displays only those counters at or above the specified threshold. The range is 1 through 4294967295.
top *N*	Displays the counters at or above the specified threshold. The range is 1 through 4294967295.

Defaults

show counters summary detail threshold 1

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
9.0(1)	This command was introduced.

Examples

The following example shows how to display all counters:

```
hostname# show counters all
Protocol     Counter           Value   Context
IOS_IPC      IN_PKTS               2   single_vf
IOS_IPC      OUT_PKTS              2   single_vf

hostname# show counters
Protocol     Counter           Value   Context
NPCP         IN_PKTS            7195   Summary
NPCP         OUT_PKTS           7603   Summary
IOS_IPC      IN_PKTS             869   Summary
IOS_IPC      OUT_PKTS            865   Summary
IP           IN_PKTS             380   Summary
IP           OUT_PKTS            411   Summary
IP           TO_ARP              105   Summary
IP           TO_UDP                9   Summary
UDP          IN_PKTS               9   Summary
UDP          DROP_NO_APP           9   Summary
FIXUP        IN_PKTS             202   Summary
UAUTH        IPV6_UNSUPPORTED     27   Summary
IDFW         HIT_USER_LIMIT        2   Summary
```

The following example shows how to display a summary of counters:

```
hostname# show counters summary
Protocol     Counter           Value   Context
IOS_IPC      IN_PKTS               2   Summary
IOS_IPC      OUT_PKTS              2   Summary
```

The following example shows how to display counters for a context:

```
hostname# show counters context single_vf
Protocol     Counter           Value   Context
IOS_IPC      IN_PKTS               4   single_vf
IOS_IPC      OUT_PKTS              4   single_vf
```

Related Commands

Command	Description
clear counters	Clears the protocol stack counters.

show cpu

To display the CPU utilization information, use the **show cpu** command in privileged EXEC mode.

[**cluster exec**] **show cpu** [**usage** *core-id* | **profile** | **dump** | **detailed**]

From the system configuration in multiple context mode:

[**cluster exec**] **show cpu** [**usage**] [**context** {**all** | *context_name*}]

Syntax Description

all	Specifies that the display show all contexts.
cluster exec	(Optional) In a clustering environment, enables you to issue the **show cpu** command in one unit and run the command in all the other units at the same time.
context	Specifies that the display show a context.
context_name	Specifies the name of the context to display.
core-id	Specifies the number of the processor core.
detailed	(Optional) Displays the CPU usage internal details.
dump	(Optional) Displays the dump profiling data to the TTY.
profile	(Optional) Displays the CPU profiling data.
usage	(Optional) Displays the CPU usage.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.
8.6(1)	The *core-id* option was added to support the ASA 5512-X, 5515-X, 5525-X, 5545-X, and 5555-X.
9.1(2)	The output was updated for the **show cpu profile** and **show cpu profile dump** commands.

Usage Guidelines

The CPU usage is computed using an approximation of the load every five seconds, and by further feeding this approximation into two, following moving averages.

You can use the **show cpu** command to find process related loads (that is, activity on behalf of items listed by the output of the **show process** command in both single mode and from the system configuration in multiple context mode).

Further, you can request, when in multiple context mode, a breakdown of the process related load to CPU consumed by any configured contexts by changing to each context and entering the **show cpu** command or by entering the **show cpu context** command.

While process related load is rounded to the nearest whole number, context related loads include one additional decimal digit of precision. For example, entering the **show cpu** command from the system context produces a different number than from entering the **show cpu context system** command. The former is an approximate summary of everything that appears in the **show cpu context all** command, and the latter is only a portion of that summary.

You can use the **show cpu profile dump** command in conjunction with the **cpu profile activate** command to collect information for TAC use in troubleshooting CPU issues. The **show cpu profile dump** command output is in hexadecimal format.

If the CPU profiler is waiting for a starting condition to occur, the **show cpu profile** command displays the following output:

```
CPU profiling started: 12:45:57.209 UTC Wed Nov 14 2012
CPU Profiling waiting on starting condition.
Core 0: 0 out of 10 samples collected.
Core 1: 0 out of 10 samples collected.
Core 2: 0 out of 10 samples collected.
Core 3: 0 out of 10 samples collected.
CP
0 out of 10 samples collected.
```

Examples

The following example shows how to display the CPU utilization:

```
hostname# show cpu usage
CPU utilization for 5 seconds = 18%; 1 minute: 18%; 5 minutes: 18%
```

The following example shows how to display detailed CPU utilization information:

```
hostname# show cpu detailed
Break down of per-core data path versus control point cpu usage:
Core         5 sec            1 min            5 min
Core 0       0.0 (0.0 + 0.0)  3.3 (0.0 + 3.3)  2.4 (0.0 + 2.4)

Current control point elapsed versus the maximum control point elapsed for:
      5 seconds = 99.0%; 1 minute: 99.8%; 5 minutes: 95.9%

CPU utilization of external processes for:
      5 seconds = 0.2%; 1 minute: 0.0%; 5 minutes: 0.0%

Total CPU utilization for:
      5 seconds = 0.2%; 1 minute: 3.3%; 5 minutes: 2.5%
```

Note The "Current control point elapsed versus the maximum control point elapsed for" statement means that the current control point load is compared to the maximum load seen within the defined time period. This is a ratio instead of an absolute number. The figure of 99% for the 5-second interval means that the current control point load is at 99% of the maximum load that is visible over this 5-second interval. If the load continues to increase all the time, then it will always remain at 100%. However, the actual CPU may still have a lot of free capacity because the maximum absolute value has not been defined.

The following example shows how to display the CPU utilization for the system context in multiple mode:

```
hostname# show cpu context system
CPU utilization for 5 seconds = 9.1%; 1 minute: 9.2%; 5 minutes: 9.1%
```

The following example shows how to display the CPU utilization for all contexts:

```
hostname# show cpu usage context all
5 sec  1 min  5 min  Context Name
9.1%   9.2%   9.1%  system
0.0%   0.0%   0.0%  admin
5.0%   5.0%   5.0%  one
4.2%   4.3%   4.2%  two
```

The following example shows how to display the CPU utilization for a context named “one”:

```
hostname/one# show cpu usage
CPU utilization for 5 seconds = 5.0%; 1 minute: 5.0%; 5 minutes: 5.0%
```

The following example activates the profiler and instructs it to store 1000 samples.

```
hostname# cpu profile activate
Activated CPU profiling for 1000 samples.
Use "show cpu profile" to display the progress or "show cpu profile dump" to interrupt
profiling and display the incomplete results.
```

The following examples show the status of the profiing (in-progress and completed):

```
hostname# show cpu profile
CPU profiling started: 13:45:10.400 PST Fri Nov 16 2012
CPU profiling currently in progress:
Core 0: 209 out of 1000 samples collected.
Use "show cpu profile dump" to see the results after it is complete or to interrupt
profiling and display the incomplete results.

hostname# show cpu profile dump
Cisco Adaptive Security Appliance Software Version 9.1(2)
Hardware:   ASA5555
CPU profiling started: 09:13:32.079 UTC Wed Jan 30 2013
No CPU profiling process specified.
No CPU profiling trigger specified.
cores: 2

Process virtual address map:
---------------------------
…
---------------------------
End of process map
Samples for core 0 - stopped
{0x00000000007eadb6,0x000000000211ee7e} ...
```

Copy this information and provide it to the TAC for decoding.

Related Commands

Command	Description
show counters	Displays the protocol stack counters.
cpu profile activate	Activates CPU profiling.

CHAPTER 47

show crashinfo through show curpriv Commands

show crashinfo

To display the contents of the crash file stored in Flash memory, enter the **show crashinfo** command in privileged EXEC mode.

show crashinfo [**save**]

Syntax Description

save	(Optional) Displays if the ASA is configured to save crash information to Flash memory or not.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

If the crash file is from a test crash (generated from the **crashinfo test** command), the first string of the crash file is "`: Saved_Test_Crash`" and the last string is "`: End_Test_Crash`". If the crash file is from a real crash, the first string of the crash file is "`: Saved_Crash`" and the last string is "`: End_Crash`". (This includes crashes from use of the **crashinfo force page-fault** or **crashinfo force watchdog** commands).

If there is no crash data saved in flash, or if the crash data has been cleared by entering the **clear crashinfo** command, the **show crashinfo** command displays an error message.

Examples

The following example shows how to display the current crash information configuration:

```
hostname# show crashinfo save
crashinfo save enable
```

The following example shows the output for a crash file test. (However, this test does not actually crash the ASA. It provides a simulated example file.)

```
hostname(config)# crashinfo test
hostname(config)# exit
hostname# show crashinfo
: Saved_Test_Crash

Thread Name: ci/console (Old pc 0x001a6ff5 ebp 0x00e88920)

Traceback:
0: 00323143
1: 0032321b
2: 0010885c
3: 0010763c
4: 001078db
5: 00103585
6: 00000000
    vector 0x000000ff (user defined)
       edi 0x004f20c4
       esi 0x00000000
       ebp 0x00e88c20
       esp 0x00e88bd8
       ebx 0x00000001
       edx 0x00000074
       ecx 0x00322f8b
       eax 0x00322f8b
error code n/a
       eip 0x0010318c
        cs 0x00000008
    eflags 0x00000000
       CR2 0x00000000
F-flags  : 0x2
F-flags2 : 0x0
F-flags3 : 0x10000
F-flags4 : 0x0
F-bytes  : 0
Stack dump: base:0x00e8511c size:16384, active:1476
0x00e89118: 0x004f1bb4
0x00e89114: 0x001078b4
0x00e89110-0x00e8910c: 0x00000000
0x00e89108-0x00e890ec: 0x12345678
0x00e890e8: 0x004f1bb4
0x00e890e4: 0x00103585
0x00e890e0: 0x00e8910c
0x00e890dc-0x00e890cc: 0x12345678
0x00e890c8: 0x00000000
0x00e890c4-0x00e890bc: 0x12345678
0x00e890b8: 0x004f1bb4
0x00e890b4: 0x001078db
0x00e890b0: 0x00e890e0
0x00e890ac-0x00e890a8: 0x12345678
0x00e890a4: 0x001179b3
0x00e890a0: 0x00e890b0
0x00e8909c-0x00e89064: 0x12345678
0x00e89060: 0x12345600
0x00e8905c: 0x20232970
0x00e89058: 0x616d2d65
0x00e89054: 0x74002023
```

```
0x00e89050: 0x29676966
0x00e8904c: 0x6e6f6328
0x00e89048: 0x31636573
0x00e89044: 0x7069636f
0x00e89040: 0x64786970
0x00e8903c-0x00e88e50: 0x00000000
0x00e88e4c: 0x000a7473
0x00e88e48: 0x6574206f
0x00e88e44: 0x666e6968
0x00e88e40: 0x73617263
0x00e88e3c-0x00e88e38: 0x00000000
0x00e88e34: 0x12345600
0x00e88e30-0x00e88dfc: 0x00000000
0x00e88df8: 0x00316761
0x00e88df4: 0x74706100
0x00e88df0: 0x12345600
0x00e88dec-0x00e88ddc: 0x00000000
0x00e88dd8: 0x00000070
0x00e88dd4: 0x616d2d65
0x00e88dd0: 0x74756f00
0x00e88dcc: 0x00000000
0x00e88dc8: 0x00e88e40
0x00e88dc4: 0x004f20c4
0x00e88dc0: 0x12345600
0x00e88dbc: 0x00000000
0x00e88db8: 0x00000035
0x00e88db4: 0x315f656c
0x00e88db0: 0x62616e65
0x00e88dac: 0x0030fcf0
0x00e88da8: 0x3011111f
0x00e88da4: 0x004df43c
0x00e88da0: 0x0053fef0
0x00e88d9c: 0x004f1bb4
0x00e88d98: 0x12345600
0x00e88d94: 0x00000000
0x00e88d90: 0x00000035
0x00e88d8c: 0x315f656c
0x00e88d88: 0x62616e65
0x00e88d84: 0x00000000
0x00e88d80: 0x004f20c4
0x00e88d7c: 0x00000001
0x00e88d78: 0x01345678
0x00e88d74: 0x00f53854
0x00e88d70: 0x00f7f754
0x00e88d6c: 0x00e88db0
0x00e88d68: 0x00e88d7b
0x00e88d64: 0x00f53874
0x00e88d60: 0x00e89040
0x00e88d5c-0x00e88d54: 0x12345678
0x00e88d50-0x00e88d4c: 0x00000000
0x00e88d48: 0x004f1bb4
0x00e88d44: 0x00e88d7c
0x00e88d40: 0x00e88e40
0x00e88d3c: 0x00f53874
0x00e88d38: 0x004f1bb4
0x00e88d34: 0x0010763c
0x00e88d30: 0x00e890b0
0x00e88d2c: 0x00e88db0
0x00e88d28: 0x00e88d88
0x00e88d24: 0x0010761a
0x00e88d20: 0x00e890b0
0x00e88d1c: 0x00e88e40
0x00e88d18: 0x00f53874
0x00e88d14: 0x0010166d
```

```
0x00e88d10: 0x0000000e
0x00e88d0c: 0x00f53874
0x00e88d08: 0x00f53854
0x00e88d04: 0x0048b301
0x00e88d00: 0x00e88d30
0x00e88cfc: 0x0000000e
0x00e88cf8: 0x00f53854
0x00e88cf4: 0x0048a401
0x00e88cf0: 0x00f53854
0x00e88cec: 0x00f53874
0x00e88ce8: 0x0000000e
0x00e88ce4: 0x0048a64b
0x00e88ce0: 0x0000000e
0x00e88cdc: 0x00f53874
0x00e88cd8: 0x00f7f96c
0x00e88cd4: 0x0048b4f8
0x00e88cd0: 0x00e88d00
0x00e88ccc: 0x0000000f
0x00e88cc8: 0x00f7f96c
0x00e88cc4-0x00e88cc0: 0x0000000e
0x00e88cbc: 0x00e89040
0x00e88cb8: 0x00000000
0x00e88cb4: 0x00f5387e
0x00e88cb0: 0x00f53874
0x00e88cac: 0x00000002
0x00e88ca8: 0x00000001
0x00e88ca4: 0x00000009
0x00e88ca0-0x00e88c9c: 0x00000001
0x00e88c98: 0x00e88cb0
0x00e88c94: 0x004f20c4
0x00e88c90: 0x0000003a
0x00e88c8c: 0x00000000
0x00e88c88: 0x0000000a
0x00e88c84: 0x00489f3a
0x00e88c80: 0x00e88d88
0x00e88c7c: 0x00e88e40
0x00e88c78: 0x00e88d7c
0x00e88c74: 0x001087ed
0x00e88c70: 0x00000001
0x00e88c6c: 0x00e88cb0
0x00e88c68: 0x00000002
0x00e88c64: 0x0010885c
0x00e88c60: 0x00e88d30
0x00e88c5c: 0x00727334
0x00e88c58: 0xa0ffffff
0x00e88c54: 0x00e88cb0
0x00e88c50: 0x00000001
0x00e88c4c: 0x00e88cb0
0x00e88c48: 0x00000002
0x00e88c44: 0x0032321b
0x00e88c40: 0x00e88c60
0x00e88c3c: 0x00e88c7f
0x00e88c38: 0x00e88c5c
0x00e88c34: 0x004b1ad5
0x00e88c30: 0x00e88c60
0x00e88c2c: 0x00e88e40
0x00e88c28: 0xa0ffffff
0x00e88c24: 0x00323143
0x00e88c20: 0x00e88c40
0x00e88c1c: 0x00000000
0x00e88c18: 0x00000008
0x00e88c14: 0x0010318c
0x00e88c10-0x00e88c0c: 0x00322f8b
0x00e88c08: 0x00000074
```

```
0x00e88c04: 0x00000001
0x00e88c00: 0x00e88bd8
0x00e88bfc: 0x00e88c20
0x00e88bf8: 0x00000000
0x00e88bf4: 0x004f20c4
0x00e88bf0: 0x000000ff
0x00e88bec: 0x00322f87
0x00e88be8: 0x00f5387e
0x00e88be4: 0x00323021
0x00e88be0: 0x00e88c10
0x00e88bdc: 0x004f20c4
0x00e88bd8: 0x00000000 *
0x00e88bd4: 0x004eabb0
0x00e88bd0: 0x00000001
0x00e88bcc: 0x00f5387e
0x00e88bc8-0x00e88bc4: 0x00000000
0x00e88bc0: 0x00000008
0x00e88bbc: 0x0010318c
0x00e88bb8-0x00e88bb4: 0x00322f8b
0x00e88bb0: 0x00000074
0x00e88bac: 0x00000001
0x00e88ba8: 0x00e88bd8
0x00e88ba4: 0x00e88c20
0x00e88ba0: 0x00000000
0x00e88b9c: 0x004f20c4
0x00e88b98: 0x000000ff
0x00e88b94: 0x001031f2
0x00e88b90: 0x00e88c20
0x00e88b8c: 0xffffffff
0x00e88b88: 0x00e88cb0
0x00e88b84: 0x00320032
0x00e88b80: 0x37303133
0x00e88b7c: 0x312f6574
0x00e88b78: 0x6972772f
0x00e88b74: 0x342f7665
0x00e88b70: 0x64736666
0x00e88b6c: 0x00020000
0x00e88b68: 0x00000010
0x00e88b64: 0x00000001
0x00e88b60: 0x123456cd
0x00e88b5c: 0x00000000
0x00e88b58: 0x00000008

Cisco XXX Firewall Version X.X
Cisco XXX Device Manager Version X.X

Compiled on Fri 15-Nov-04 14:35 by root

hostname up 10 days 0 hours

Hardware:   XXX-XXX, 64 MB RAM, CPU Pentium 200 MHz
Flash i28F640J5 @ 0x300, 16MB
BIOS Flash AT29C257 @ 0xfffd8000, 32KB

0: ethernet0: address is 0003.e300.73fd, irq 10
1: ethernet1: address is 0003.e300.73fe, irq 7
2: ethernet2: address is 00d0.b7c8.139e, irq 9
Licensed Features:
Failover:           Disabled
VPN-DES:            Enabled
VPN-3DES-AES:       Disabled
Maximum Interfaces: 3
Cut-through Proxy:  Enabled
Guards:             Enabled
```

```
URL-filtering:      Enabled
Inside Hosts:       Unlimited
Throughput:         Unlimited
IKE peers:          Unlimited

This XXX has a Restricted (R) license.

Serial Number: 480430455 (0x1ca2c977)
Running Activation Key: 0xc2e94182 0xc21d8206 0x15353200 0x633f6734
Configuration last modified by enable_15 at 13:49:42.148 UTC Wed Nov 20 2004

------------------ show clock ------------------

15:34:28.129 UTC Sun Nov 24 2004

------------------ show memory ------------------

Free memory:        50444824 bytes
Used memory:        16664040 bytes
-------------     ----------------
Total memory:       67108864 bytes

------------------ show conn count ------------------

0 in use, 0 most used

------------------ show xlate count ------------------

0 in use, 0 most used

------------------ show vpn-sessiondb summary ------------------

Active Session Summary

Sessions:
                          Active : Cumulative : Peak Concurrent : Inactive
  SSL VPN               :       2 :          2 :               2
    Clientless only     :       0 :          0 :               0
    With client         :       2 :          2 :               2 :        0
  Email Proxy           :       0 :          0 :               0
  IPsec LAN-to-LAN      :       1 :          1 :               1
  IPsec Remote Access   :       0 :          0 :               0
  VPN Load Balancing    :       0 :          0 :               0
  Totals                :       3 :          3

License Information:
  Shared VPN License Information:
    SSL VPN                   :     1500
      Allocated to this device :       50
      Allocated in network     :       50
      Device limit             :      750

  IPsec   :    750    Configured :    750    Active :      1    Load :   0%
  SSL VPN :     52    Configured :     52    Active :      2    Load :   4%
                         Active : Cumulative : Peak Concurrent
  IPsec               :          1 :          1 :               1
  SSL VPN             :          2 :         10 :               2
    AnyConnect Mobile :          0 :          0 :               0
    Linksys Phone     :          0 :          0 :               0
  Totals              :          3 :         11

Tunnels:
                    Active : Cumulative : Peak Concurrent
  IKE         :          1 :          1 :               1
```

```
  IPsec       :          1 :          1 :              1
  Clientless  :          2 :          2 :              2
  SSL-Tunnel  :          2 :          2 :              2
  DTLS-Tunnel :          2 :          2 :              2
  Totals      :          8 :          8
------------------ show blocks ------------------

  SIZE    MAX    LOW    CNT
     4   1600   1600   1600
    80    400    400    400
   256    500    499    500
  1550   1188    795    927

------------------ show interface ------------------

interface ethernet0 "outside" is up, line protocol is up
  Hardware is i82559 ethernet, address is 0003.e300.73fd
  IP address 172.23.59.232, subnet mask 255.255.0.0
  MTU 1500 bytes, BW 10000 Kbit half duplex
        6139 packets input, 830375 bytes, 0 no buffer
        Received 5990 broadcasts, 0 runts, 0 giants
        0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
        90 packets output, 6160 bytes, 0 underruns
        0 output errors, 13 collisions, 0 interface resets
        0 babbles, 0 late collisions, 47 deferred
        0 lost carrier, 0 no carrier
        input queue (curr/max blocks): hardware (5/128) software (0/2)
        output queue (curr/max blocks): hardware (0/1) software (0/1)
interface ethernet1 "inside" is up, line protocol is down
  Hardware is i82559 ethernet, address is 0003.e300.73fe
  IP address 10.1.1.1, subnet mask 255.255.255.0
  MTU 1500 bytes, BW 10000 Kbit half duplex
        0 packets input, 0 bytes, 0 no buffer
        Received 0 broadcasts, 0 runts, 0 giants
        0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
        1 packets output, 60 bytes, 0 underruns
        0 output errors, 0 collisions, 0 interface resets
        0 babbles, 0 late collisions, 0 deferred
        1 lost carrier, 0 no carrier
        input queue (curr/max blocks): hardware (128/128) software (0/0)
        output queue (curr/max blocks): hardware (0/1) software (0/1)
interface ethernet2 "intf2" is administratively down, line protocol is down
  Hardware is i82559 ethernet, address is 00d0.b7c8.139e
  IP address 127.0.0.1, subnet mask 255.255.255.255
  MTU 1500 bytes, BW 10000 Kbit half duplex
        0 packets input, 0 bytes, 0 no buffer
        Received 0 broadcasts, 0 runts, 0 giants
        0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
        0 packets output, 0 bytes, 0 underruns
        0 output errors, 0 collisions, 0 interface resets
        0 babbles, 0 late collisions, 0 deferred
        0 lost carrier, 0 no carrier
        input queue (curr/max blocks): hardware (128/128) software (0/0)
        output queue (curr/max blocks): hardware (0/0) software (0/0)

------------------ show cpu usage ------------------

CPU utilization for 5 seconds = 0%; 1 minute: 0%; 5 minutes: 0%

------------------ show process ------------------


    PC       SP       STATE       Runtime    SBASE     Stack Process
Hsi 001e3329 00763e7c 0053e5c8          0 00762ef4 3784/4096 arp_timer
```

```
Lsi 001e80e9 00807074 0053e5c8          0 008060fc 3792/4096 FragDBGC
Lwe 00117e3a 009dc2e4 00541d18          0 009db46c 3704/4096 dbgtrace
Lwe 003cee95 009de464 00537718          0 009dc51c 8008/8192 Logger
Hwe 003d2d18 009e155c 005379c8          0 009df5e4 8008/8192 tcp_fast
Hwe 003d2c91 009e360c 005379c8          0 009e1694 8008/8192 tcp_slow
Lsi 002ec97d 00b1a464 0053e5c8          0 00b194dc 3928/4096 xlate clean
Lsi 002ec88b 00b1b504 0053e5c8          0 00b1a58c 3888/4096 uxlate clean
Mrd 002e3a17 00c8f8d4 0053e600          0 00c8d93c 7908/8192 tcp_intercept_times
Lsi 00423dd5 00d3a22c 0053e5c8          0 00d392a4 3900/4096 route_process
Hsi 002d59fc 00d3b2bc 0053e5c8          0 00d3a354 3780/4096 PIX Garbage Collecr
Hwe 0020e301 00d5957c 0053e5c8          0 00d55614 16048/16384 isakmp_time_keepr
Lsi 002d377c 00d7292c 0053e5c8          0 00d719a4 3928/4096 perfmon
Hwe 0020bd07 00d9c12c 0050bb90          0 00d9b1c4 3944/4096 IPsec
Mwe 00205e25 00d9e1ec 0053e5c8          0 00d9c274 7860/8192 IPsec timer handler
Hwe 003864e3 00db26bc 00557920          0 00db0764 6904/8192 qos_metric_daemon
Mwe 00255a65 00dc9244 0053e5c8          0 00dc8adc 1436/2048 IP Background
Lwe 002e450e 00e7bb94 00552c30          0 00e7ad1c 3704/4096 pix/trace
Lwe 002e471e 00e7cc44 00553368          0 00e7bdcc 3704/4096 pix/tconsole
Hwe 001e5368 00e7ed44 00730674          0 00e7ce9c 7228/8192 pix/intf0
Hwe 001e5368 00e80e14 007305d4          0 00e7ef6c 7228/8192 pix/intf1
Hwe 001e5368 00e82ee4 00730534       2470 00e8103c 4892/8192 pix/intf2
H*  001a6ff5 0009ff2c 0053e5b0       4820 00e8511c 12860/16384 ci/console
Csi 002dd8ab 00e8a124 0053e5c8          0 00e891cc 3396/4096 update_cpu_usage
Hwe 002cb4d1 00f2bfbc 0051e360          0 00f2a134 7692/8192 uauth_in
Hwe 003d17d1 00f2e0bc 00828cf0          0 00f2c1e4 7896/8192 uauth_thread
Hwe 003e71d4 00f2f20c 00537d20          0 00f2e294 3960/4096 udp_timer
Hsi 001db3ca 00f30fc4 0053e5c8          0 00f3004c 3784/4096 557mcfix
Crd 001db37f 00f32084 0053ea40  508286220 00f310fc 3688/4096 557poll
Lsi 001db435 00f33124 0053e5c8          0 00f321ac 3700/4096 557timer
Hwe 001e5398 00f441dc 008121e0          0 00f43294 3912/4096 fover_ip0
Cwe 001dcdad 00f4523c 00872b48        120 00f44344 3528/4096 ip/0:0
Hwe 001e5398 00f4633c 008121bc         10 00f453f4 3532/4096 icmp0
Hwe 001e5398 00f47404 00812198          0 00f464cc 3896/4096 udp_thread/0
Hwe 001e5398 00f4849c 00812174          0 00f475a4 3456/4096 tcp_thread/0
Hwe 001e5398 00f495bc 00812150          0 00f48674 3912/4096 fover_ip1
Cwe 001dcdad 00f4a61c 008ea850          0 00f49724 3832/4096 ip/1:1
Hwe 001e5398 00f4b71c 0081212c          0 00f4a7d4 3912/4096 icmp1
Hwe 001e5398 00f4c7e4 00812108          0 00f4b8ac 3896/4096 udp_thread/1
Hwe 001e5398 00f4d87c 008120e4          0 00f4c984 3832/4096 tcp_thread/1
Hwe 001e5398 00f4e99c 008120c0          0 00f4da54 3912/4096 fover_ip2
Cwe 001e542d 00f4fa6c 00730534          0 00f4eb04 3944/4096 ip/2:2
Hwe 001e5398 00f50afc 0081209c          0 00f4fbb4 3912/4096 icmp2
Hwe 001e5398 00f51bc4 00812078          0 00f50c8c 3896/4096 udp_thread/2
Hwe 001e5398 00f52c5c 00812054          0 00f51d64 3832/4096 tcp_thread/2
Hwe 003d1a65 00f78284 008140f8          0 00f77fdc  300/1024 listen/http1
Mwe 0035cafa 00f7a63c 0053e5c8          0 00f786c4 7640/8192 Crypto CA

------------------ show failover ------------------

No license for Failover

------------------ show traffic ------------------

outside:
        received (in 865565.090 secs):
                6139 packets    830375 bytes
                0 pkts/sec      0 bytes/sec
        transmitted (in 865565.090 secs):
                90 packets      6160 bytes
                0 pkts/sec      0 bytes/sec
inside:
        received (in 865565.090 secs):
                0 packets       0 bytes
                0 pkts/sec      0 bytes/sec
```

```
        transmitted (in 865565.090 secs):
                1 packets       60 bytes
                0 pkts/sec      0 bytes/sec
intf2:
        received (in 865565.090 secs):
                0 packets       0 bytes
                0 pkts/sec      0 bytes/sec
        transmitted (in 865565.090 secs):
                0 packets       0 bytes
                0 pkts/sec      0 bytes/sec

------------------ show perfmon ------------------


PERFMON STATS:    Current      Average
Xlates               0/s          0/s
Connections          0/s          0/s
TCP Conns            0/s          0/s
UDP Conns            0/s          0/s
URL Access           0/s          0/s
URL Server Req       0/s          0/s
TCP Fixup            0/s          0/s
TCPIntercept         0/s          0/s
HTTP Fixup           0/s          0/s
FTP Fixup            0/s          0/s
AAA Authen           0/s          0/s
AAA Author           0/s          0/s
AAA Account          0/s          0/s
: End_Test_Crash
```

Related Commands

Command	Description
clear crashinfo	Deletes the contents of the crash file.
crashinfo force	Forces a crash of the ASA.
crashinfo save disable	Disables crash information from writing to flash memory.
crashinfo test	Tests the ability of the ASA to save crash information to a file in flash memory.

show crashinfo console

To display the configuration setting of the **crashinfo console** command, enter the **show crashinfo console** command.

show crashinfo console

Syntax Description

This command has no arguments or keywords.

Defaults

This command has no default settings.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(4)	This command was introduced.

Usage Guidelines

Compliance with FIPS 140-2 prohibits the distribution of Critical Secu rity Parameters (keys, passwords, etc.) outside of the crypto boundary (chassis). When the device crashes, due to an assert or checkheaps failure, it is possible that the stack or memory regions dumped to the console contain sensitive data. This output must be suppressed in FIPS-mode.

Examples

```
sw8-5520(config)# show crashinfo console
crashinfo console enable
```

Related Commands

Command	Description
clear configure fips	Clears the system or module FIPS configuration information stored in NVRAM.
crashinfo console disable	Disables the reading, writing and configuration of crash write info to flash.
fips enable	Enables or disablea policy-checking to enforce FIPS compliance on the system or module.
show running-config fips	Displays the FIPS configuration that is running on the ASA.

show crypto accelerator statistics

To display the global and accelerator-specific statistics from the hardware crypto accelerator MIB, use the **show crypto accelerator statistics** command in global configuration or privileged EXEC mode.

show crypto accelerator statistics

Syntax Description

This command has no keywords or variables.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—
Privileged EXEC	•	•	•	• —	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

The output statistics are defined as follows:

Accelerator 0 shows statistics for the software-based crypto engine.

Accelerator 1 shows statistics for the hardware-based crypto engine.

RSA statistics show RSA operations for 2048-bit keys, which are executed in software by default. This means that when you have a 2048-bit key, IKE/SSL VPN performs RSA operations in software during the IPsec/SSL negotiation phase. Actual IPsec/SSL traffic is still processed using hardware. This may cause high CPU if there are many simultaneous sessions starting at the same time, which may result in multiple RSA key operations and high CPU. If you run into a high CPU condition because of this, then you should use a 1024-bit key to process RSA key operations in hardware. To do so, you must reenroll the identity certificate. In releases 8.3(2) or later, you can also use the crypto engine large-mod-accel command on the 5510-5550 platforms to perform these operations in hardware.

If you are using a 2048-bit RSA key and the RSA processing is performed in software, you can use CPU profiling to determine which functions are causing high CPU usage. Generally, the bn_* and BN_* functions are math operations on the large data sets used for RSA, and are the most useful when examining CPU usage during an RSA operation in software. For example:

```
@@@@@@@@@@@@@@@@@@@@............................. 36.50% : _bn_mul_add_words
@@@@@@@@@@.....................................  19.75% : _bn_sqr_comba8
```

Diffie-Hellman statistics show that any crypto operation with a modulus size greater than 1024 is performed in software (for example, DH5 (Diffie-Hellman group 5 uses 1536)). If so, a 2048-bit key certificate will be processed in software, which can result in high CPU usage when a lot of sessions are running.

Note The ASA 5505 (with a Cavium CN505 processor) only supports Diffie-Hellman Groups 1 and 2 for hardware-accelerated, 768-bit and 1024-bit key generation. Diffie-Hellman Group 5 (1536-bit key generation) is performed in software.

A single crypto engine in the adaptive security appliance performs the IPsec and SSL operations. To display the versions of crypto (Cavium) microcode that are loaded into the hardware crypto accelerator at boot time, enter the **show version** command. For example:

```
hostname(config) show version

Cisco Adaptive Security Appliance Software Version 8.0(4)8
Device Manager Version 6.1(5)
Compiled on Wed 15-Oct-09 17:27 by builders
System image file is "disk0:/interim/asa804-8-k8.bin"
Config file at boot was "startup-config"
asa up 5 days 17 hours
Hardware:   ASA5505, 512 MB RAM, CPU Geode 500 MHz
Internal ATA Compact Flash, 512MB
BIOS Flash M50FW080 @ 0xffe00000, 1024KB
Encryption hardware device : Cisco ASA-5505 on-board accelerator (revision 0x0)
                             Boot microcode   : CN1000-MC-BOOT-2.00
                             SSL/IKE microcode: CNLite-MC-SSLm-PLUS-2.03
                             IPsec microcode  : CNlite-MC-IPSECm-MAIN-2.05
```

DSA statistics show key generation in two phases. The first phase is a choice of algorithm parameters, which may be shared between different users of the system. The second phase computes private and public keys for a single user.

SSL statistics show records for the processor-intensive public key encryption algorithms involved in SSL transactions to the hardware crypto accelerator.

RNG statistics show records for a sender and receiver, which can generate the same set of random numbers automatically to use as keys.

Examples

The following example, entered in global configuration mode, shows global crypto accelerator statistics:

```
hostname # show crypto accelerator statistics

Crypto Accelerator Status
-------------------------
[Capacity]
   Supports hardware crypto: True
   Supports modular hardware crypto: False
   Max accelerators: 1
   Max crypto throughput: 100 Mbps
   Max crypto connections: 750
[Global Statistics]
   Number of active accelerators: 1
   Number of non-operational accelerators: 0
   Input packets: 700
   Input bytes: 753488
   Output packets: 700
   Output error packets: 0
```

```
   Output bytes: 767496
[Accelerator 0]
   Status: Active
   Software crypto engine
   Slot: 0
   Active time: 167 seconds
   Total crypto transforms: 7
   Total dropped packets: 0
   [Input statistics]
      Input packets: 0
      Input bytes: 0
      Input hashed packets: 0
      Input hashed bytes: 0
      Decrypted packets: 0
      Decrypted bytes: 0
   [Output statistics]
      Output packets: 0
      Output bad packets: 0
      Output bytes: 0
      Output hashed packets: 0
      Output hashed bytes: 0
      Encrypted packets: 0
      Encrypted bytes: 0
   [Diffie-Hellman statistics]
      Keys generated: 0
      Secret keys derived: 0
   [RSA statistics]
      Keys generated: 0
      Signatures: 0
      Verifications: 0
      Encrypted packets: 0
      Encrypted bytes: 0
      Decrypted packets: 0
      Decrypted bytes: 0
   [DSA statistics]
      Keys generated: 0
      Signatures: 0
      Verifications: 0
   [SSL statistics]
      Outbound records: 0
      Inbound records: 0
   [RNG statistics]
      Random number requests: 98
      Random number request failures: 0
[Accelerator 1]
   Status: Active
   Encryption hardware device : Cisco ASA-55x0 on-board accelerator
(revision 0x0)
                              Boot microcode   : CNlite-MC-Boot-Cisco-1.2
                              SSL/IKE microcode: CNlite-MC-IPSEC-Admin-3.03
                              IPsec microcode  : CNlite-MC-IPSECm-MAIN-2.03
   Slot: 1
   Active time: 170 seconds
   Total crypto transforms: 1534
   Total dropped packets: 0
   [Input statistics]
      Input packets: 700
      Input bytes: 753544
      Input hashed packets: 700
      Input hashed bytes: 736400
      Decrypted packets: 700
      Decrypted bytes: 719944
   [Output statistics]
      Output packets: 700
```

```
   Output bad packets: 0
   Output bytes: 767552
   Output hashed packets: 700
   Output hashed bytes: 744800
   Encrypted packets: 700
   Encrypted bytes: 728352
[Diffie-Hellman statistics]
   Keys generated: 97
   Secret keys derived: 1
[RSA statistics]
   Keys generated: 0
   Signatures: 0
   Verifications: 0
   Encrypted packets: 0
   Encrypted bytes: 0
   Decrypted packets: 0
   Decrypted bytes: 0
[DSA statistics]
   Keys generated: 0
   Signatures: 0
   Verifications: 0
[SSL statistics]
   Outbound records: 0
   Inbound records: 0
[RNG statistics]
   Random number requests: 1
   Random number request failures: 0
```

The following table describes what the output entries indicates.

Output	Decription
Capacity	This section pertains to the crypto acceleration that the ASA can support.
Supports hardware crypto	(True/False) The ASA can support hardware crypto acceleration.
Supports modular hardware crypto	(True/False) Any supported hardware crypto accelerator can be inserted as a separate plug-in card or module.
Max accelerators	The maximum number of hardware crypto accelerators that the ASA supports.
Mac crypto throughput	The maximum rated VPN throughput for the ASA.
Max crypto connections	The maximum number of supported VPN tunnels for the ASA.
Global Statistics	This section pertains to the combined hardware crypto accelerators in the ASA.
Number of active accelerators	The number of active hardware accelerators. An active hardware accelerator has been initialized and is avaialble to process crypto commands.
Number of non-operational accelerators	The number of inactive hardware accelerators. An inactive hardware accelerator has been detected, but either has not completed initialization or has failed and is no longer usable.
Input packets	The number of inbound packets processed by all hardware crypto accelerators.
Input bytes	The number of bytes of data in the processed inbound packets.

Output (continued)	Decription (continued)
Output packets	The number of outbound packets processed by all hardware crypto accelerators.
Output error packets	The number of outbound packets processed processed by all hardware crypto accelerators in which an error has been detected.
Output bytes	The number of bytes of data in the processed outbound packets.
Accelerator 0	Each of these sections pertains to a crypto accelerator. The first one (Accelerator 0) is always the software crypto engine. Although not a hardware accelerator, the ASA uses it to perform specific crypto tasks, and its statistics appear here. Accelerators 1 and higher are always hardware crypto accelerators.
Status	The status of the accelerator, which indicates whether the accelerator is being initialized, is active, or has failed.
Software crypto engine	The type of accelerator and firmware version (if applicable).
Slot	The slot number of the accelerator (if applicable).
Active time	The length of time that the accelerator has been in the active state.
Total crypto transforms	The total number of crypto commands that were performed by the accelerator.
Total dropped packets	The total number of packets that were dropped by the accelerator because of errors.
Input statistics	This section pertains to input traffic that was processed by the accelerator. Input traffic is considered to be ciphertext that must be decrypted and/or authenticated.
Input packets	The number of input packets that have been processed by the accelerator.
Input bytes	The number of input bytes that have been processed by the accelerator
Input hashed packets	The number of packets for which the accelerator has performed hash operations.
Input hashed bytes	The number of bytes over which the accelerator has performed hash operations.
Decrypted packets	The number of packets for which the accelerator has performed symmetric decryption operations.
Decrypted bytes	The number of bytes over which the accelerator has performed symmetric decryption operations.
Output statistics	This section pertains to output traffic that has been processed by the accelerator. Input traffic is considered clear text that must be encrypted and/or hashed.
Output packets	The number of output packets that have been processed by the accelerator.

Output (continued)	Decription (continued)
Output bad packets	The number of output packets that have been processed by the accelerator in which an error has been detected.
Output bytes	The number of output bytes that have been processed by the accelerator.
Output hashed packets	The number of packets for which the accelerator has performed outbound hash operations.
Output hashed bytes	The number of bytes over which the accelerator has performed outbound hash operations.
Encyrpted packets	The number of packets for which the accelerator has performed symmetric encryption operations.
Encyrpted bytes	The number of bytes over which the accelerator has performed symmetric encryption operations.
Diffie-Hellman statistics	This section pertains to Diffie-Hellman key exchange operations.
Keys generated	The number of Diffie-Hellman key sets that have been generated by the accelerator.
Secret keys derived	The number of Diffie-Hellman shared secrets that have been derived by the accelerator.
RSA statistics	This section pertains to RSA crypto operations.
Keys generated	The number of RSA key sets that have been generated by the accelerator.
Signatures	The number of RSA signature operations that have been performed by the accelerator.
Verifications	The number of RSA signature verifications that have been performed by the accelerator.
Encrypted packets	The number of packets for which the accelerator has performed RSA encryption operations.
Decrypted packets	The number of packets for which the accelerator has performed RSA decryption operations.
Decrypted bytes	The number of bytes of data over which the accelerator has performed RSA decryption operations.
DSA statistics	This section pertains to DSA operations. Note that DSA is not supported as of Version 8.2, so these statistics are no longer displayed.
Keys generated	The number of DSA key sets that have been generated by the accelerator.
Signatures	The number of DSA signature operations that have been performed by the accelerator.
Verifications	The number of DSA signature verifications that have been performed by the accelerator.
SSL statistics	This section pertains to SSL record processing operations.
Outbound records	The number of SSL records that have been encrypted and authenticated by the accelerator.

Output (continued)	Decription (continued)
Inbound records	The number of SSL records that have been decrypted and authenticated by the accelerator.
RNG statistics	This section pertains to random number generation.
Random number requests	The number of requests to the accelerator for a random number.
Random number request failures	The number of randum number requests to the accelerator that did not succeed.

Related Commands

Command	Description
clear crypto accelerator statistics	Clears the global and accelerator-specific statistics in the crypto accelerator MIB.
clear crypto protocol statistics	Clears the protocol-specific statistics in the crypto accelerator MIB.
show crypto protocol statistics	Displays the protocol-specific statistics from the crypto accelerator MIB.

show crypto ca certificates

To display the certificates associated with a specific trustpoint or to display all the certificates installed on the system, use the **show crypto ca certificates** command in global configuration or privileged EXEC mode.

show crypto ca certificates [*trustpointname*]

Syntax Description

trustpointname	(Optional) The name of a trustpoint. If you do not specify a name, this command displays all certificates installed on the ASA.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Examples

The following is sample output from the **show crypto ca certificates** command:

```
hostname(config)# show crypto ca certificates tp1
CA Certificate
    Status: Available
    Certificate Serial Number 2957A3FF296EF854FD0D6732FE25B45
    Certificate Usage: Signature
    Issuer:
        CN = ms-root-sha-06-2004
        OU = rootou
        O = cisco
        L = franklin
        ST - massachusetts
        C = US
        EA = a@b.con
    Subject:
        CN = ms-root-sha-06-2004
        OU = rootou
        O = cisco
        L = franklin
        ST = massachusetts
        C = US
        EA = example.com
    CRL Distribution Point
```

```
        ldap://w2kadvancedsrv/CertEnroll/ms-root-sha-06-2004.crl
    Validity Date:
        start date: 14:11:40 UTC Jun 26 2004
        end date: 14:01:30 UTC Jun 4 2022
    Associated Trustpoints: tp2 tp1
hostname(config)#
```

Related Commands

Command	Description
crypto ca authenticate	Obtains a CA certificate for a specified trustpoint.
crypto ca crl request	Requests a CRL based on the configuration parameters of a specified trustpoint.
crypto ca enroll	Initiates the enrollment process with a CA.
crypto ca import	Imports a certificate to a specified trustpoint.
crypto ca trustpoint	Enters trustpoint configuration mode for a specified trustpoint.

show crypto ca crl

To display all cached CRLs or to display all CRLs cached for a specified trustpoint, use the **show crypto ca crl** command in global configuration or privileged EXEC mode.

show crypto ca crl [trustpool | trustpoint <*trustpointname*>]

Syntax Description

trustpointname	(Optional) The name of a trustpoint. If you do not specify a name, this command displays all CRLs cached on the ASA.
trustpool	tbd?

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	
Privileged EXEC	•	•	•	•	

Command History

Release	Modification
9.0(1)	This command was introduced.

Examples

The following is sample output from the **show crypto ca crl** command:

```
hostname(config)# show crypto ca crl tp1
CRL Issuer Name:
    cn=ms-sub1-ca-5-2004,ou=Franklin DevTest,o=Cisco
Systems,l=Franklin,st=MA,c=US,ea=user@example.com
    LastUpdate: 19:45:53 UTC Dec 24 2004
    NextUpdate: 08:05:53 UTC Jan 1 2005
    Retrieved from CRL Distribution Point:
      http://win2k-ad2.frk-ms-pki.cisco.com/CertEnroll/ms-sub1-ca-5-2004.crl
    Associated Trustpoints: tp1
hostname(config)#
```

Related Commands

Command	Description
crypto ca authenticate	Obtains a CA certificate for a specified trustpoint.
crypto ca crl request	Requests a CRL based on the configuration parameters of a specified trustpoint.
crypto ca enroll	Initiates the enrollment process with a CA.

Command	Description
crypto ca import	Imports a certificate to a specified trustpoint.
crypto ca trustpoint	Enters trustpoint configuration mode for a specified trustpoint.

show crypto ca server

To display the status of the local CA configuration on the ASA, use the **show crypto ca server** command in ca server configuration, global configuration, or privileged EXEC mode.

show crypto ca server

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ca server configuration	•	—	•	—	—
Global configuration	•	—	•	—	—
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Examples

The following is sample output from the **show crypto ca server** command:

```
hostname# show crypto ca server
#Certificate Server LOCAL-CA-SERVER:
    Status: disabled
    State: disabled
    Server's configuration is unlocked (enter "no shutdown" to lock it)
    Issuer name: CN=asa1.cisco.com
    CA cert fingerprint: -Not found-
    Last certificate issued serial number: 0x0
    CA certificate expiration timer: 00:00:00 UTC Jan 1 2009
    CRL not present.
    Current primary storage dir: nvram:
hostname#
```

Related Commands

Command	Description
crypto ca server	Provides access to the ca server configuration mode CLI command set, which allows you to configure and manage the local CA.
debug crypto ca server	Shows debugging messages when you configure the local CA server.

Command	Description
show crypto ca server certificate	Displays the certificate of the local CA in base64 format.
show crypto ca server crl	Displays the lifetime of the local CA CRL.

show crypto ca server cert-db

To display all or a subset of local CA server certificates, including those issued to a specific user, use the **show crypto ca server cert-db** command in ca server configuration, global configuration, or privileged EXEC mode.

show crypto ca server cert-db [**username** *username* | **allowed** | **enrolled** | **expired** | **on-hold**] [**serial** *certificate-serial-number*]

Syntax Description

allowed	Specifies that users who are allowed to enroll appear, regardless of the status of their certificate.
enrolled	Specifies that users with valid certificates appear.
expired	Specifies that users holding expired certificates appear.
on-hold	Specifies that users who have not yet enrolled appear.
serial *certificate-serial-number*	Specifies the serial number of a specific certificate that displays. The serial number must be in hexadecimal format.
username *username*	Specifies the certificate owner. The username may be a username or an e-mail address. For e-mail addresses, it is the e-mail address used to contact and deliver the one-time password (OTP) to the end user. An e-mail address is required to enable e-mail notifications for the end user.

Defaults

By default, if no username or certificate serial number is specified, the entire database of issued certificates appears.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Ca server configuration	•	—	•	—	—
Global configuration	•	—	•	—	—
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

The **show crypto ca server cert-db** command displays a list of the user certificates that are issued by the local CA server. You can display a subset of the certificate database by specifying a specific username with one or more of the optional certificate-type keywords, and/or with an optional certificate serial number.

If you specify a username without a keyword or a serial number, all of the certificates issued for that user appear. For each user, the output shows the username, e-mail address, domain name, the time period for which enrollment is allowed, and the number of times that the user has been notified with an enrollment invitation.

In addition, the following information appears in the output:

- The NOTIFIED field is required to support multiple reminders. It tracks when a user needs to be notified of the OTP for enrollment and the reminder notification attempts. This field is set to 0 initially. It is incremented to 1 when the user entry is marked as being allowed to enroll. At this time, the initial OTP notification is generated.
- The NOTIFY field is incremented each time a reminder is sent. Three notifications are sent before the OTP is due to expire. A notification is sent when the user is allowed to enroll, at the mid-point of the expiration, and when ¾ of the expiration time has passed. This field is used only for administrator-initiated enrollments. For automatic certificate renewals, the NOTIFYfield in the certificate database is used.

Each certificate displays the certificate serial number, the issued and expired dates, and the certificate status (Revoked/Not Revoked).

Examples

The following example requests the display of all of the certificates issued for asa by the CA server:

```
hostname# show crypto ca server cert-db username asa
Username: asa
Renewal allowed until: Not Allowed
Number of times user notified: 0
PKCS12 file stored until: 10:28:05 UTC Wed Sep 25 2013
Certificates Issued:
serial:   0x2
issued:   10:28:04 UTC Tue Sep 24 2013
expired:  10:28:04 UTC Thu Sep 26 2013
status:   Not Revoked
```

The following example requests the display of all the certificates issued by the local CA server with a serial number of 0x2:

```
hostname# show crypto ca server cert-db serial 2

Username:asa
Renewal allowed until: Not Allowed
Number of times user notified: 0
PKCS12 file stored until: 10:28:05 UTC Wed Sep 25 2013
Certificates Issued:
serial:   0x2
issued:   10:28:04 UTC Tue Sep 24 2013
expired:  10:28:04 UTC Thu Sep 26 2013
status:   Not Revoked
```

The following example requests the display of all of the certificates issued by the local CA server:

```
hostname# show crypto ca server cert-db
Username: asa
Renewal allowed until: Not Allowed
Number of times user notified: 0
PKCS12 file stored until: 10:28:05 UTC Wed Sep 25 2013
Certificates Issued:
serial:   0x2
issued:   10:28:04 UTC Tue Sep 24 2013
expired:  10:28:04 UTC Thu Sep 26 2013
status:   Not Revoked
```

Related Commands

Command	Description
crypto ca server	Provides access to the ca server configuration mode CLI command set, which allows you to configure and manage the local CA.
crypto ca server revoke	Marks a certificate issued by the local CA server as revoked in both the certificate database and CRL.
lifetime crl	Specifies the lifetime of the CRL.

show crypto ca server certificate

To display the certificate for the local CA server in base64 format, use the **show crypto ca server certificate** command in ca server configuration, global configuration, or privileged EXEC mode.

show crypto ca server certificate

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ca server configuration	•	—	•	—	—
Global configuration	•	—	•	—	—
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

The **show crypto ca server certificate** command displays the local CA server certificate in base64 format. This display allows you to cut and paste a certificate while exporting it to other devices that need to trust the local CA server.

Examples

The following is sample output from the **show crypto ca server certificate** command:

```
hostname# show crypto ca server certificate

The base64 encoded local CA certificate follows:

MIIXlwIBAzCCF1EGCSqGSIb3DQEHAaCCF0IEghc+MIIXOjCCFzYGCSqGSIb3DQEHBqCCFycwghcjAgEAMIIXHAYJKo
ZIhvcNAQcBMBsGCiqGSIb3DQEMAQMwDQQIjph4SxJoyTgCAQGAghbw3v4bFy+GGG2dJnB4OLphsUM+IG3SDOiDwZG9
n1SvtMieoxd7Hxknxbum06JDrujWKtHBIqkrm+td34qlNE1iGeP2YC94/NQ2z+4kS+uZzwcRhl1KEZTS1E4L0fSaC3
uMTxJq2NUHYWmoc8pi4CIeLj3h7VVMy6qbx2AC8I+q57+QG5vG5l5Hi5imwtYfaWwPEdPQxaWZPrzoG1J8BFqdPa1j
BGhAzzuSmElm3j/2dQ3Atro1G9nIsRHgV39fcBgwz4fEabHG7/Vanb+fj81d5nlOiJjDYYbP86tvbZ2yOVZR6aKFVI
0b2AfCr6PbwfC9U8Z/aF3BCyM2sN2xPJrXva94CaYrqyotZdAkSYA5KWScyEcgdqmuBeGDKOncTknfgy0XM+fG5rb3
qAXy1GkjyFI5Bm9Do6RUROoG1DSrQrKeq/hj….

hostname#
```

Related Commands

Command	Description
crypto ca server	Provides access to the ca server configuration mode CLI command set, which allows you to configure and manage a local CA.
issuer-name	Specifies the subject-name DN of the certificate authority certificate.
keysize	Specifies the size of the public and private keys generated at user certificate enrollment.
lifetime	Specifies the lifetime of the CA certificate and issued certificates.
show crypto ca server	Displays the local CA configuration in ASCII text format.

show crypto ca server crl

To display the current CRL of the local CA, use the **show crypto ca server crl** command in ca server configuration, global configuration, or privileged EXEC mode.

show crypto ca server crl

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ca server configuration	•	—	•	—	—
Global configuration	•	—	•	—	—
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Examples

The following is sample output from the **show crypto ca server crl** command:

```
hostname# show crypto ca server crl
asa5540(config)# sh cry ca ser crl
Certificate Revocation List:
    Issuer: cn=asa5540.frqa.cisco.com
    This Update: 07:32:27 UTC Oct 16 2006
    Next Update: 13:32:27 UTC Oct 16 2006
    Number of CRL entries: 0
    CRL size: 232 bytes
asa5540(config)#
hostname#
```

Related Commands

Command	Description
cdp-url	Specifies the CRL distribution point (CDP) to be included in the certificates issued by the CA.
crypto ca server	Provides access to the ca server configuration mode CLI command set, which allows you to configure and manage the local CA.
crypto ca server revoke	Marks a certificate issued by the local CA server as revoked in the certificate database and CRL.

Command	Description
lifetime crl	Specifies the lifetime of the CRL.
show crypto ca server	Displays the status of the CA configuration.

show crypto ca server user-db

To display users included in the local CA server user database, use the **show crypto ca server user-db** command in ca server configuration, global configuration, or privileged EXEC mode.

show crypto ca server user-db [**expired** | **allowed** | **on-hold** | **enrolled**]

Syntax Description

allowed	(Optional) Specifies that users who are allowed to enroll display, regardless of the status of their certificate.
enrolled	(Optional) Specifies that users with valid certificates display.
expired	(Optional) Specifies that users holding expired certificates display.
on-hold	(Optional) Specifies that users who have not enrolled yet display.

Defaults

By default, all users in the database display if no keywords are entered.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ca server configuration	•	—	•	—	—
Global configuration	•	—	•	—	—
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Examples

The following example displays currently enrolled users:

```
hostname# show crypto ca server user-db enrolled
Username   DN                Certificate issued    Certificate expiration
exampleusercn=Example User,o=...5/31/2009           5/31/2010

hostname#
```

Related Commands

Command	Description
crypto ca server user-db add	Adds a user to the CA server user database.
crypto ca server user-db allow	Allows a specific user or a subset of users in the CA server database to enroll with the local CA.
crypto ca server user-db remove	Removes a user from the CA server user database.

Command	Description
crypto ca server user-db write	Writes user information configured in the local CA database to storage.
show crypto ca server cert-db	Displays all certificates issued by the local CA.

show crypto ca trustpool

To display the certificates that constitute the trustpool, use the **show crypto ca trustpool** command in privileged EXEC mode.

show crypto ca trustpool [detail]

Syntax Description

This command has no arguments or keywords.

Defaults

This command shows an abbreviated display of all the trustpool certificates. When the "detail" option is specified, more information is included.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

The output of the show crypto ca trustpool command includes the fingerprint value of each certificate. These values are required for removal operation.

Examples

```
hostname# show crypto ca trustpool

CA Certificate
Status: Available
Certificate Serial Number: 6c386c409f4ff4944154635da520ed4c
Certificate Usage: Signature
Public Key Type: RSA (2048 bits)
Signature Algorithm: SHA1 with RSA Encryption
Issuer Name: cn=bxb2008-root
dc=bdb2008
dc=mycompany
dc=com
Subject Name:
cn=bxb2008-root
dc=bxb2008
dc=cisco
dc=com
Validity Date:
start date:17:21:06 EST Jan 14 2009
end date:17:31:06 EST Jan 14 2024
```

```
CA Certificate
Status: Available
Certificate Serial Number: 58d1c756000000000059
Certificate Usage: Signature
Public Key Type: RSA (2048 bits)
Signature Algorithm: SHA1 with RSA Encryption
Issuer Name:
cn=bxb2008-root
dc=bxb2008
dc=mycompany
dc=com
Subject Name:
cn=BXB2008SUB1-CA
dc=bxb2008
dc=cisco
dc=com
OCSP AIA:
URL: http://bxb2008-1.bxb2008.mycompany.com/ocsp
CRL Distribution Points:
(1) http://bxb2008-1.bxb2008.mycompany.com/CertEnroll/bxb2008-root.crl
Validity Date:
start date:11:54:34 EST May 18 2009
end date:12:04:34 EST May 18 2011
```

Related Commands

Command	Description
clear crypto ca trustpool	Removes all certificates from the trustpool.
crypto ca trustpool import	Imports certificates that constitute the PKI trustpool.
crypto ca trustpool remove	Removes a single specified certificate from the trustpool.

show crypto ca trustpool policy

To display the configured trustpool policy and process any applied certificate maps to show how those impact the policy, use the **show crypto ca trustpool policy** command in privileged EXEC mode.

show crypto ca trustpool policy

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Examples

```
hostname(config)# sh run cry ca cert map
crypto ca certificate map map1 1
issuer-name eq cn = mycompany manufacturing ca
issuer-name eq cn = mycompany ca
crypto ca certificate map map 2 1
issuer-name eq cn = mycompany manufacturing ca
issuer-name eq cn = mycompany ca2
ciscoasa(config)#

hostname(config)# sh run crypto ca trustpool policy
crypto ca trustpool policy
revocation-check none
match certificate map2 allow expired-certificate
match certificate map1 skip revocation-check
crl cache-time 123
ciscoasa(config)#

hostname# show crypto ca trustpool policy
800 trustpool certificates installed
Trustpool Policy
Trustpool revocation checking is disabled
CRL cache time: 123 seconds
CRL next update field: required and forced
Policy overrides:
map: map1
match:issuer-name eq cn=Mycompany Manufacturing CA
match:issuer-name eq cn=Mycompany CA
```

```
action:skip revocation-check

map: map2
match: issuer-name eq cn=mycompany Manufacturing CA
match: issuer-name eq cn=mycompany CA2
action: allowed expired certificates

hostname(config)#
```

Related Commands

Command	Description
crypto ca trustpool policy	Enters a submode that provides the commands that define the trustpool policy.

show crypto debug-condition

To display the currently configured filters, the unmatched states, and the error states for IPsec and ISAKMP debugging messages, use the **show crypto debug-condition** command in global configuration mode.

show crypto debug-condition

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Examples

The following example shows the filtering conditions:

```
hostname(config)# show crypto debug-condition
Crypto conditional debug is turned ON
IKE debug context unmatched flag:  OFF
IPsec debug context unmatched flag:  ON

IKE peer IP address filters:
1.1.1.0/24   2.2.2.2

IKE user name filters:
my_user
```

Related Commands

Command	Description
debug crypto condition	Sets filtering conditions for IPsec and ISAKMP debugging messages.
debug crypto condition error	Shows debugging messages whether or not filtering conditions have been specified.
debug crypto condition unmatched	Shows debugging messages for IPsec and ISAKMP that do not include sufficient context information for filtering.

show crypto ikev1 sa

To display the IKEv1 runtime SA database, use the **show crypto ikev1 sa** command in global configuration mode or privileged EXEC mode.

show crypto ikev1 sa [**detail**]

Syntax Description

detail	Displays detailed output about the SA database.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	—	•	•	—
Privileged EXEC	•	—	•	• —	—

Command History

Release	Modification
8.4(1)	This command command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

The output from this command includes the following fields:

Detail not specified.

IKE Peer	Type	Dir	Rky	State
209.165.200.225	L2L	Init	No	MM_Active

Detail specified.

IKE Peer	Type	Dir	Rky	State	Encrypt	Hash	Auth	Lifetime
209.165.200.225	L2L	Init	No	MM_Active	3des	md5	preshrd	86400

Examples

The following example, entered in global configuration mode, displays detailed information about the SA database:

```
hostname(config)# show crypto ikev1 sa detail

IKE Peer  Type  Dir   Rky  State      Encrypt Hash  Auth    Lifetime
1 209.165.200.225 User  Resp  No   AM_Active  3des    SHA   preshrd 86400

IKE Peer  Type  Dir   Rky  State      Encrypt Hash  Auth    Lifetime
2 209.165.200.226 User  Resp  No   AM_ACTIVE  3des    SHA   preshrd 86400

IKE Peer  Type  Dir   Rky  State      Encrypt Hash  Auth    Lifetime
3 209.165.200.227 User  Resp  No   AM_ACTIVE  3des    SHA   preshrd 86400

IKE Peer  Type  Dir   Rky  State      Encrypt Hash  Auth    Lifetime
4 209.165.200.228 User  Resp  No   AM_ACTIVE  3des    SHA   preshrd 86400

hostname(config)#
```

Related Commands

Command	Description
show crypto ikev2 sa	Displays the IKEv2 runtime SA database.
show running-config crypto isakmp	Displays all the active ISAKMP configuration.

show crypto ikev2 sa

To display the IKEv2 runtime SA database, use the **show crypto ikev2 sa** command in global configuration mode or privileged EXEC mode.

show crypto ikev2 sa [**detail**]

Syntax Description

detail	Displays detailed output about the SA database.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	—	•	• —	—
Privileged EXEC	•	—	•	• —	—

Command History

Release	Modification
8.4(1)	This command command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

The output from this command includes the following fields:

Detail not specified.

IKE Peer	Type	Dir	Rky	State
209.165.200.225	L2L	Init	No	MM_Active

Detail specified.

IKE Peer	Type	Dir	Rky	State	Encrypt	Hash	Auth	Lifetime
209.165.200.225	L2L	Init	No	MM_Active	3des	md5	preshrd	86400

Examples

The following example, entered in global configuration mode, displays detailed information about the SA database:

```
asa(config)# show crypto ikev2 sa detail

IKEv2 SAs:

Session-id:1, Status:UP-ACTIVE, IKE count:1, CHILD count:1

Tunnel-id                Local                Remote     Status         Role
671069399                10.0.0.0/500 10.255.255.255/500      READY    INITIATOR
      Encr: AES-GCM, keysize: 256, Hash: N/A, DH Grp:20, Auth sign: PSK, Auth verify: PSK
      Life/Active Time: 86400/188 sec
      Session-id: 1
      Status Description: Negotiation done
      Local spi: 80173A0373C2D403       Remote spi: AE8AEFA1B97DBB22
      Local id: asa
      Remote id: asa1
      Local req mess id: 8              Remote req mess id: 7
      Local next mess id: 8             Remote next mess id: 7
      Local req queued: 8               Remote req queued: 7
      Local window: 1                   Remote window: 1
      DPD configured for 10 seconds, retry 2
      NAT-T is not detected
Child sa: local selector  0.0.0.0/0 - 255.255.255.255/65535
          remote selector 0.0.0.0/0 - 255.255.255.255/65535
          ESP spi in/out: 0x242a3da5/0xe6262034
          AH spi in/out: 0x0/0x0
          CPI in/out: 0x0/0x0
          Encr: AES-GCM, keysize: 128, esp_hmac: N/A
          ah_hmac: None, comp: IPCOMP_NONE, mode tunnel
```

Related Commands

Command	Description
show crypto ikev1 sa	Displays the IKEv1 runtime SA database.
show running-config crypto isakmp	Displays all the active ISAKMP configuration.

show crypto ipsec df-bit

To display the IPsec DF-bit policy for IPsec packets for a specified interface, use the **show crypto ipsec df-bit** command in global configuration mode and privileged EXEC mode.

show crypto ipsec df-bit *interface*

Syntax Description

interface	Specifies an interface name.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	• —	—
Privileged EXEC	•	•	•	• —	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Examples

The following example displays the IPsec DF-bit policy for interface named inside:

```
hostname(config)# show crypto ipsec df-bit inside
df-bit inside copy
hostname(config)#
```

Related Commands

Command	Description
crypto ipsec df-bit	Configures the IPsec DF-bit policy for IPsec packets.
crypto ipsec fragmentation	Configures the fragmentation policy for IPsec packets.
show crypto ipsec fragmentation	Displays the fragmentation policy for IPsec packets.

show crypto ipsec fragmentation

To display the fragmentation policy for IPsec packets, use the **show crypto ipsec fragmentation** command in global configuration or privileged EXEC mode.

show crypto ipsec fragmentation *interface*

Syntax Description

interface	Specifies an interface name.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	• —	—
Privileged EXEC	•	•	•	• —	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Examples

The following example, entered in global configuration mode, displays the IPsec fragmentation policy for an interface named inside:

```
hostname(config)# show crypto ipsec fragmentation inside
fragmentation inside before-encryption
hostname(config)#
```

Related Commands

Command	Description
crypto ipsec fragmentation	Configures the fragmentation policy for IPsec packets.
crypto ipsec df-bit	Configures the DF-bit policy for IPsec packets.
show crypto ipsec df-bit	Displays the DF-bit policy for a specified interface.

show crypto ipsec policy

To display IPsec secure socket API (SS API) security policy information provided by OSPFv3, use the **show crypto ipsec policy** command in global configuration or privileged EXEC mode. You can also use the alternate form of this command: **show ipsec policy**.

show crypto ipsec policy [name]

Syntax Description

name	Specifies a policy name.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	• —	—
Privileged EXEC	•	•	•	• —	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Examples

The following example, entered in global configuration mode, displays the crypto secure socket API installed policy information for a policy named CSSU-UTF:

```
hostname(config)# show crypto ipsec policy
Crypto IPsec client security policy data

       Policy name:      CSSU-UTF
       Policy refcount:  0
       Inbound  ESP SPI:        1031 (0x407)
       Outbound ESP SPI:        1031 (0x407)
       Inbound  ESP Auth Key:   0123456789abcdef
       Outbound ESP Auth Key:   0123456789abcdef
       Inbound  ESP Cipher Key:
       Outbound ESP Cipher Key:
       Transform set:    esp-sha-hmac
```

Related Commands

Command	Description
show crypto ipsec fragmentation	Displays the fragmentation policy for IPsec packets.
show crypto ipsec sa	Displays a list of IPsec SA.
show crypto ipsec df-bit	Displays the DF-bit policy for a specified interface.
show crypto sockets	Displays crypto secure sockets and the socket state.

show crypto ipsec sa

To display a list of IPsec SAs, use the **show crypto ipsec sa** command in global configuration mode or privileged EXEC mode. You can also use the alternate form of this command: **show ipsec sa**.

show crypto ipsec sa [**entry** | **identity** | **map** *map-name* | **peer** *peer-addr*] [**detail**]

Syntax Description

detail	(Optional) Displays detailed error information on what is displayed.
entry	(Optional) Displays IPsec SAs sorted by peer address
identity	(Optional) Displays IPsec SAs for sorted by identity, not including ESPs. This is a condensed form.
map *map-name*	(Optional) Displays IPsec SAs for the specified crypto map.
peer *peer-addr*	(Optional) Displays IPsec SAs for specified peer IP addresses.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	• —	—
Privileged EXEC	•	•	•	• —	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Added support for OSPFv3, multipe context mode, Suite B algorithm in the transform and IV size portion, and ESPV3 IPsec output.

Examples

The following example, entered in global configuration mode, displays IPsec SAs that include a tunnel identified as OSPFv3.

```
hostname(config)# show crypto ipsec sa
interface: outside2
    Crypto map tag: def, local addr: 10.132.0.17

      local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
      remote ident (addr/mask/prot/port): (172.20.0.21/255.255.255.255/0/0)
      current_peer: 172.20.0.21
      dynamic allocated peer ip: 10.135.1.5

      #pkts encaps: 0, #pkts encrypt: 0, #pkts digest: 0
      #pkts decaps: 1145, #pkts decrypt: 1145, #pkts verify: 1145
      #pkts compressed: 0, #pkts decompressed: 0
      #pkts not compressed: 0, #pkts comp failed: 0, #pkts decomp failed: 0
```

```
      #pre-frag successes: 2, #pre-frag failures: 1, #fragments created: 10
      #PMTUs sent: 5, #PMTUs rcvd: 2, #decapstulated frags needing reassembly: 1
      #send errors: 0, #recv errors: 0

      local crypto endpt.: 10.132.0.17, remote crypto endpt.: 172.20.0.21

      path mtu 1500, ipsec overhead 60, media mtu 1500
      current outbound spi: DC15BF68

    inbound esp sas:
      spi: 0x1E8246FC (511854332)
         transform: esp-3des esp-md5-hmac
         in use settings ={L2L, Transport, Manual key, (OSPFv3), }
         slot: 0, conn_id: 3, crypto-map: def
         sa timing: remaining key lifetime (sec): 548
         IV size: 8 bytes
         replay detection support: Y
    outbound esp sas:
      spi: 0xDC15BF68 (3692412776)
         transform: esp-3des esp-md5-hmac
         in use settings ={L2L, Transport, Manual key, (OSPFv3), }
         slot: 0, conn_id: 3, crypto-map: def
         sa timing: remaining key lifetime (sec): 548
         IV size: 8 bytes
         replay detection support: Y

    Crypto map tag: def, local addr: 10.132.0.17

      local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
hostname(config)#
```

Note Fragmentation statistics are pre-fragmentation statistics if the IPsec SA policy states that fragmentation occurs before IPsec processing. Post-fragmentation statistics appear if the SA policy states that fragmentation occurs after IPsec processing.

The following example, entered in global configuration mode, displays IPsec SAs for a crypto map named def.

```
hostname(config)# show crypto ipsec sa map def
cryptomap: def
    Crypto map tag: def, local addr: 172.20.0.17

      local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
      remote ident (addr/mask/prot/port): (10.132.0.21/255.255.255.255/0/0)
      current_peer: 10.132.0.21
      dynamic allocated peer ip: 90.135.1.5

      #pkts encaps: 0, #pkts encrypt: 0, #pkts digest: 0
      #pkts decaps: 1146, #pkts decrypt: 1146, #pkts verify: 1146
      #pkts compressed: 0, #pkts decompressed: 0
      #pkts not compressed: 0, #pkts comp failed: 0, #pkts decomp failed: 0
      #send errors: 0, #recv errors: 0

      local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.132.0.21

      path mtu 1500, ipsec overhead 60, media mtu 1500
      current outbound spi: DC15BF68

    inbound esp sas:
      spi: 0x1E8246FC (511854332)
         transform: esp-3des esp-md5-hmac
         in use settings ={RA, Tunnel, }
```

```
        slot: 0, conn_id: 3, crypto-map: def
        sa timing: remaining key lifetime (sec): 480
        IV size: 8 bytes
        replay detection support: Y
    outbound esp sas:
      spi: 0xDC15BF68 (3692412776)
        transform: esp-3des esp-md5-hmac
        in use settings ={RA, Tunnel, }
        slot: 0, conn_id: 3, crypto-map: def
        sa timing: remaining key lifetime (sec): 480
        IV size: 8 bytes
        replay detection support: Y

    Crypto map tag: def, local addr: 172.20.0.17

      local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
      remote ident (addr/mask/prot/port): (192.168.132.0/255.255.255.0/0/0)
      current_peer: 10.135.1.8
      dynamic allocated peer ip: 0.0.0.0

      #pkts encaps: 73672, #pkts encrypt: 73672, #pkts digest: 73672
      #pkts decaps: 78824, #pkts decrypt: 78824, #pkts verify: 78824
      #pkts compressed: 0, #pkts decompressed: 0
      #pkts not compressed: 73672, #pkts comp failed: 0, #pkts decomp failed: 0
      #send errors: 0, #recv errors: 0

      local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.135.1.8

      path mtu 1500, ipsec overhead 60, media mtu 1500
      current outbound spi: 3B6F6A35

    inbound esp sas:
      spi: 0xB32CF0BD (3006066877)
        transform: esp-3des esp-md5-hmac
        in use settings ={RA, Tunnel, }
        slot: 0, conn_id: 4, crypto-map: def
        sa timing: remaining key lifetime (sec): 263
        IV size: 8 bytes
        replay detection support: Y
    outbound esp sas:
      spi: 0x3B6F6A35 (997157429)
        transform: esp-3des esp-md5-hmac
        in use settings ={RA, Tunnel, }
        slot: 0, conn_id: 4, crypto-map: def
        sa timing: remaining key lifetime (sec): 263
        IV size: 8 bytes
        replay detection support: Y
hostname(config)#
```

The following example, entered in global configuration mode, shows IPsec SAs for the keyword **entry**.

```
hostname(config)# show crypto ipsec sa entry
peer address: 10.132.0.21
    Crypto map tag: def, local addr: 172.20.0.17

      local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
      remote ident (addr/mask/prot/port): (10.132.0.21/255.255.255.255/0/0)
      current_peer: 10.132.0.21
      dynamic allocated peer ip: 90.135.1.5

      #pkts encaps: 0, #pkts encrypt: 0, #pkts digest: 0
      #pkts decaps: 1147, #pkts decrypt: 1147, #pkts verify: 1147
      #pkts compressed: 0, #pkts decompressed: 0
      #pkts not compressed: 0, #pkts comp failed: 0, #pkts decomp failed: 0
```

```
      #send errors: 0, #recv errors: 0

      local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.132.0.21

      path mtu 1500, ipsec overhead 60, media mtu 1500
      current outbound spi: DC15BF68

    inbound esp sas:
      spi: 0x1E8246FC (511854332)
         transform: esp-3des esp-md5-hmac
         in use settings ={RA, Tunnel, }
         slot: 0, conn_id: 3, crypto-map: def
         sa timing: remaining key lifetime (sec): 429
         IV size: 8 bytes
         replay detection support: Y
    outbound esp sas:
      spi: 0xDC15BF68 (3692412776)
         transform: esp-3des esp-md5-hmac
         in use settings ={RA, Tunnel, }
         slot: 0, conn_id: 3, crypto-map: def
         sa timing: remaining key lifetime (sec): 429
         IV size: 8 bytes
         replay detection support: Y

peer address: 10.135.1.8
    Crypto map tag: def, local addr: 172.20.0.17

      local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
      remote ident (addr/mask/prot/port): (192.168.132.0/255.255.255.0/0/0)
      current_peer: 10.135.1.8
      dynamic allocated peer ip: 0.0.0.0

      #pkts encaps: 73723, #pkts encrypt: 73723, #pkts digest: 73723
      #pkts decaps: 78878, #pkts decrypt: 78878, #pkts verify: 78878
      #pkts compressed: 0, #pkts decompressed: 0
      #pkts not compressed: 73723, #pkts comp failed: 0, #pkts decomp failed: 0
      #send errors: 0, #recv errors: 0

      local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.135.1.8

      path mtu 1500, ipsec overhead 60, media mtu 1500
      current outbound spi: 3B6F6A35

    inbound esp sas:
      spi: 0xB32CF0BD (3006066877)
         transform: esp-3des esp-md5-hmac
         in use settings ={RA, Tunnel, }
         slot: 0, conn_id: 4, crypto-map: def
         sa timing: remaining key lifetime (sec): 212
         IV size: 8 bytes
         replay detection support: Y
    outbound esp sas:
      spi: 0x3B6F6A35 (997157429)
         transform: esp-3des esp-md5-hmac
         in use settings ={RA, Tunnel, }
         slot: 0, conn_id: 4, crypto-map: def
         sa timing: remaining key lifetime (sec): 212
         IV size: 8 bytes
         replay detection support: Y
hostname(config)#
```

The following example, entered in global configuration mode, shows IPsec SAs with the keywords **entry detail**.

```
hostname(config)# show crypto ipsec sa entry detail
peer address: 10.132.0.21
    Crypto map tag: def, local addr: 172.20.0.17

      local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
      remote ident (addr/mask/prot/port): (10.132.0.21/255.255.255.255/0/0)
      current_peer: 10.132.0.21
      dynamic allocated peer ip: 90.135.1.5

      #pkts encaps: 0, #pkts encrypt: 0, #pkts digest: 0
      #pkts decaps: 1148, #pkts decrypt: 1148, #pkts verify: 1148
      #pkts compressed: 0, #pkts decompressed: 0
      #pkts not compressed: 0, #pkts comp failed: 0, #pkts decomp failed: 0
      #pkts no sa (send): 0, #pkts invalid sa (rcv): 0
      #pkts encaps failed (send): 0, #pkts decaps failed (rcv): 0
      #pkts invalid prot (rcv): 0, #pkts verify failed: 0
      #pkts invalid identity (rcv): 0, #pkts invalid len (rcv): 0
      #pkts replay rollover (send): 0, #pkts replay rollover (rcv): 0
      #pkts replay failed (rcv): 0
      #pkts internal err (send): 0, #pkts internal err (rcv): 0

      local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.132.0.21

      path mtu 1500, ipsec overhead 60, media mtu 1500
      current outbound spi: DC15BF68

    inbound esp sas:
      spi: 0x1E8246FC (511854332)
         transform: esp-3des esp-md5-hmac
         in use settings ={RA, Tunnel, }
         slot: 0, conn_id: 3, crypto-map: def
         sa timing: remaining key lifetime (sec): 322
         IV size: 8 bytes
         replay detection support: Y
    outbound esp sas:
      spi: 0xDC15BF68 (3692412776)
         transform: esp-3des esp-md5-hmac
         in use settings ={RA, Tunnel, }
         slot: 0, conn_id: 3, crypto-map: def
         sa timing: remaining key lifetime (sec): 322
         IV size: 8 bytes
         replay detection support: Y

peer address: 10.135.1.8
    Crypto map tag: def, local addr: 172.20.0.17

      local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
      remote ident (addr/mask/prot/port): (192.168.132.0/255.255.255.0/0/0)
      current_peer: 10.135.1.8
      dynamic allocated peer ip: 0.0.0.0

      #pkts encaps: 73831, #pkts encrypt: 73831, #pkts digest: 73831
      #pkts decaps: 78989, #pkts decrypt: 78989, #pkts verify: 78989
      #pkts compressed: 0, #pkts decompressed: 0
      #pkts not compressed: 73831, #pkts comp failed: 0, #pkts decomp failed: 0
      #pkts no sa (send): 0, #pkts invalid sa (rcv): 0
      #pkts encaps failed (send): 0, #pkts decaps failed (rcv): 0
      #pkts invalid prot (rcv): 0, #pkts verify failed: 0
      #pkts invalid identity (rcv): 0, #pkts invalid len (rcv): 0
      #pkts replay rollover (send): 0, #pkts replay rollover (rcv): 0
      #pkts replay failed (rcv): 0
      #pkts internal err (send): 0, #pkts internal err (rcv): 0

      local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.135.1.8
```

```
      path mtu 1500, ipsec overhead 60, media mtu 1500
      current outbound spi: 3B6F6A35

    inbound esp sas:
      spi: 0xB32CF0BD (3006066877)
         transform: esp-3des esp-md5-hmac
         in use settings ={RA, Tunnel, }
         slot: 0, conn_id: 4, crypto-map: def
         sa timing: remaining key lifetime (sec): 104
         IV size: 8 bytes
         replay detection support: Y
    outbound esp sas:
      spi: 0x3B6F6A35 (997157429)
         transform: esp-3des esp-md5-hmac
         in use settings ={RA, Tunnel, }
         slot: 0, conn_id: 4, crypto-map: def
         sa timing: remaining key lifetime (sec): 104
         IV size: 8 bytes
         replay detection support: Y
hostname(config)#
```

The following example shows IPsec SAs with the keyword **identity**.

```
hostname(config)# show crypto ipsec sa identity
interface: outside2
    Crypto map tag: def, local addr: 172.20.0.17

      local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
      remote ident (addr/mask/prot/port): (10.132.0.21/255.255.255.255/0/0)
      current_peer: 10.132.0.21
      dynamic allocated peer ip: 90.135.1.5

      #pkts encaps: 0, #pkts encrypt: 0, #pkts digest: 0
      #pkts decaps: 1147, #pkts decrypt: 1147, #pkts verify: 1147
      #pkts compressed: 0, #pkts decompressed: 0
      #pkts not compressed: 0, #pkts comp failed: 0, #pkts decomp failed: 0
      #send errors: 0, #recv errors: 0

      local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.132.0.21

      path mtu 1500, ipsec overhead 60, media mtu 1500
      current outbound spi: DC15BF68

    Crypto map tag: def, local addr: 172.20.0.17

      local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
      remote ident (addr/mask/prot/port): (192.168.132.0/255.255.255.0/0/0)
      current_peer: 10.135.1.8
      dynamic allocated peer ip: 0.0.0.0

      #pkts encaps: 73756, #pkts encrypt: 73756, #pkts digest: 73756
      #pkts decaps: 78911, #pkts decrypt: 78911, #pkts verify: 78911
      #pkts compressed: 0, #pkts decompressed: 0
      #pkts not compressed: 73756, #pkts comp failed: 0, #pkts decomp failed: 0
      #send errors: 0, #recv errors: 0

      local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.135.1.8

      path mtu 1500, ipsec overhead 60, media mtu 1500
      current outbound spi: 3B6F6A35
```

The following example shows IPsec SAs with the keywords **identity** and **detail**.

```
hostname(config)# show crypto ipsec sa identity detail
interface: outside2
    Crypto map tag: def, local addr: 172.20.0.17

      local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
      remote ident (addr/mask/prot/port): (10.132.0.21/255.255.255.255/0/0)
      current_peer: 10.132.0.21
      dynamic allocated peer ip: 90.135.1.5

      #pkts encaps: 0, #pkts encrypt: 0, #pkts digest: 0
      #pkts decaps: 1147, #pkts decrypt: 1147, #pkts verify: 1147
      #pkts compressed: 0, #pkts decompressed: 0
      #pkts not compressed: 0, #pkts comp failed: 0, #pkts decomp failed: 0
      #pkts no sa (send): 0, #pkts invalid sa (rcv): 0
      #pkts encaps failed (send): 0, #pkts decaps failed (rcv): 0
      #pkts invalid prot (rcv): 0, #pkts verify failed: 0
      #pkts invalid identity (rcv): 0, #pkts invalid len (rcv): 0
      #pkts replay rollover (send): 0, #pkts replay rollover (rcv): 0
      #pkts replay failed (rcv): 0
      #pkts internal err (send): 0, #pkts internal err (rcv): 0

      local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.132.0.21

      path mtu 1500, ipsec overhead 60, media mtu 1500
      current outbound spi: DC15BF68

    Crypto map tag: def, local addr: 172.20.0.17

      local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
      remote ident (addr/mask/prot/port): (192.168.132.0/255.255.255.0/0/0)
      current_peer: 10.135.1.8
      dynamic allocated peer ip: 0.0.0.0

      #pkts encaps: 73771, #pkts encrypt: 73771, #pkts digest: 73771
      #pkts decaps: 78926, #pkts decrypt: 78926, #pkts verify: 78926
      #pkts compressed: 0, #pkts decompressed: 0
      #pkts not compressed: 73771, #pkts comp failed: 0, #pkts decomp failed: 0
      #pkts no sa (send): 0, #pkts invalid sa (rcv): 0
      #pkts encaps failed (send): 0, #pkts decaps failed (rcv): 0
      #pkts invalid prot (rcv): 0, #pkts verify failed: 0
      #pkts invalid identity (rcv): 0, #pkts invalid len (rcv): 0
      #pkts replay rollover (send): 0, #pkts replay rollover (rcv): 0
      #pkts replay failed (rcv): 0
      #pkts internal err (send): 0, #pkts internal err (rcv): 0

      local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.135.1.8

      path mtu 1500, ipsec overhead 60, media mtu 1500
      current outbound spi: 3B6F6A35
```

Related Commands

Command	Description
clear configure isakmp	Clears all the ISAKMP configuration.
clear configure isakmp policy	Clears all ISAKMP policy configuration.
clear isakmp sa	Clears the IKE runtime SA database.

Command	Description
isakmp enable	Enables ISAKMP negotiation on the interface on which the IPsec peer communicates with the ASA.
show running-config isakmp	Displays all the active ISAKMP configuration.

show crypto ipsec stats

To display a list of IPsec statistics, use the **show crypto ipsec stats** command in global configuration mode or privileged EXEC mode.

show crypto ipsec stats

Syntax Description

This command has no keywords or variables.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	• —	—
Privileged EXEC	•	•	•	• —	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Examples

The following example, entered in global configuration mode, displays IPsec statistics:

```
hostname(config)# show crypto ipsec stats

IPsec Global Statistics
-----------------------
Active tunnels: 2
Previous tunnels: 9
Inbound
    Bytes: 4933013
    Decompressed bytes: 4933013
    Packets: 80348
    Dropped packets: 0
    Replay failures: 0
    Authentications: 80348
    Authentication failures: 0
    Decryptions: 80348
    Decryption failures: 0
    Decapsulated fragments needing reassembly: 0
Outbound
    Bytes: 4441740
    Uncompressed bytes: 4441740
    Packets: 74029
    Dropped packets: 0
    Authentications: 74029
    Authentication failures: 0
    Encryptions: 74029
```

```
    Encryption failures: 0
    Fragmentation successes: 3
        Pre-fragmentation successes:2
        Post-fragmentation successes: 1
    Fragmentation failures: 2
        Pre-fragmentation failures:1
        Post-fragmentation failures: 1
    Fragments created: 10
    PMTUs sent: 1
    PMTUs recvd: 2
Protocol failures: 0
Missing SA failures: 0
System capacity failures: 0
hostname(config)#
```

Related Commands

Command	Description
clear ipsec sa	Clears IPsec SAs or counters based on specified parameters.
crypto ipsec transform-set	Defines a transform set.
show ipsec sa	Displays IPsec SAs based on specified parameters.
show ipsec sa summary	Displays a summary of IPsec SAs.

Examples

The following example, issued in global configuration mode, displays ISAKMP statistics:

```
hostname(config)# show crypto isakmp stats
Global IKE Statistics
Active Tunnels: 132
Previous Tunnels: 132
In Octets: 195471
In Packets: 1854
In Drop Packets: 925
In Notifys: 0
In P2 Exchanges: 132
In P2 Exchange Invalids: 0
In P2 Exchange Rejects: 0
In P2 Sa Delete Requests: 0
Out Octets: 119029
Out Packets: 796
Out Drop Packets: 0
Out Notifys: 264
Out P2 Exchanges: 0
Out P2 Exchange Invalids: 0
Out P2 Exchange Rejects: 0
Out P2 Sa Delete Requests: 0
Initiator Tunnels: 0
Initiator Fails: 0
Responder Fails: 0
System Capacity Fails: 0
Auth Fails: 0
Decrypt Fails: 0
Hash Valid Fails: 0
No Sa Fails: 0
hostname(config)#
```

Related Commands

Command	Description
clear configure crypto isakmp	Clears all the ISAKMP configuration.
clear configure crypto isakmp policy	Clears all ISAKMP policy configuration.
clear crypto isakmp sa	Clears the IKE runtime SA database.
crypto isakmp enable	Enables ISAKMP negotiation on the interface on which the IPsec peer communicates with the ASA.
show running-config crypto isakmp	Displays all the active ISAKMP configuration.

show crypto isakmp sa

To display the IKE runtime SA database, use the **show crypto isakmp sa** command in global configuration mode or privileged EXEC mode.

show crypto isakmp sa [**detail**]

Syntax Description

detail	Displays detailed output about the SA database.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	—	•	• —	—
Privileged EXEC	•	—	•	• —	—

Command History

Release	Modification
7.0(1)	The **show isakmp sa** command was introduced.
7.2(1)	This command was deprecated. The **show crypto isakmp sa** command replaces it.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

The output from this command includes the following fields:

Detail not specified.

IKE Peer	Type	Dir	Rky	State
209.165.200.225	L2L	Init	No	MM_Active

Detail specified.

IKE Peer	Type	Dir	Rky	State	Encrypt	Hash	Auth	Lifetime
209.165.200.225	L2L	Init	No	MM_Active	3des	md5	preshrd	86400

Examples

The following example, entered in global configuration mode, displays detailed information about the SA database:

```
hostname(config)# show crypto isakmp sa detail

IKE Peer  Type  Dir   Rky  State      Encrypt Hash  Auth    Lifetime
1 209.165.200.225 User  Resp  No   AM_Active  3des    SHA   preshrd 86400

IKE Peer  Type  Dir   Rky  State      Encrypt Hash  Auth    Lifetime
2 209.165.200.226 User  Resp  No   AM_ACTIVE  3des    SHA   preshrd 86400

IKE Peer  Type  Dir   Rky  State      Encrypt Hash  Auth    Lifetime
3 209.165.200.227 User  Resp  No   AM_ACTIVE  3des    SHA   preshrd 86400

IKE Peer  Type  Dir   Rky  State      Encrypt Hash  Auth    Lifetime
4 209.165.200.228 User  Resp  No   AM_ACTIVE  3des    SHA   preshrd 86400

hostname(config)#
```

Related Commands

Command	Description
clear configure crypto isakmp	Clears all the ISAKMP configuration.
clear configure crypto isakmp policy	Clears all ISAKMP policy configuration.
clear crypto isakmp sa	Clears the IKE runtime SA database.
crypto isakmp enable	Enables ISAKMP negotiation on the interface on which the IPsec peer communicates with the ASA.
show running-config crypto isakmp	Displays all the active ISAKMP configuration.

show crypto isakmp stats

To display runtime statistics, use the **show crypto isakmp stats** command in global configuration mode or privileged EXEC mode.

show crypto isakmp stats

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	• —	—
Privileged EXEC	•	—	•	• —	—

Command History

Release	Modification
9.0(1)	The **show isakmp stats** command was introduced.
7.2(1)	The **show isakmp stats** command was deprecated. The **show crypto isakmp stats** command replaces it.

Usage Guidelines

The output from this command includes the following fields:

- Global IKE Statistics
- Active Tunnels
- In Octets
- In Packets
- In Drop Packets
- In Notifys
- In P2 Exchanges
- In P2 Exchange Invalids
- In P2 Exchange Rejects
- In P2 Sa Delete Requests
- Out Octets
- Out Packets

- Out Drop Packets
- Out Notifys
- Out P2 Exchanges
- Out P2 Exchange Invalids
- Out P2 Exchange Rejects
- Out P2 Sa Delete Requests
- Initiator Tunnels
- Initiator Fails
- Responder Fails
- System Capacity Fails
- Auth Fails
- Decrypt Fails
- Hash Valid Fails
- No Sa Fails

Examples

The following example, issued in global configuration mode, displays ISAKMP statistics:

```
hostname(config)# show crypto isakmp stats
Global IKE Statistics
Active Tunnels: 132
Previous Tunnels: 132
In Octets: 195471
In Packets: 1854
In Drop Packets: 925
In Notifys: 0
In P2 Exchanges: 132
In P2 Exchange Invalids: 0
In P2 Exchange Rejects: 0
In P2 Sa Delete Requests: 0
Out Octets: 119029
Out Packets: 796
Out Drop Packets: 0
Out Notifys: 264
Out P2 Exchanges: 0
Out P2 Exchange Invalids: 0
Out P2 Exchange Rejects: 0
Out P2 Sa Delete Requests: 0
Initiator Tunnels: 0
Initiator Fails: 0
Responder Fails: 0
System Capacity Fails: 0
Auth Fails: 0
Decrypt Fails: 0
Hash Valid Fails: 0
No Sa Fails: 0
hostname(config)#
```

Related Commands

Command	Description
clear configure crypto isakmp	Clears all the ISAKMP configuration.
clear configure crypto isakmp policy	Clears all ISAKMP policy configuration.
clear crypto isakmp sa	Clears the IKE runtime SA database.
crypto isakmp enable	Enables ISAKMP negotiation on the interface on which the IPsec peer communicates with the ASA.
show running-config crypto isakmp	Displays all the active ISAKMP configuration.

show crypto key mypubkey

To display the key name, usage, and elliptic curve size for ECDSA keys, use the **show crypto key mypubkey** command in global configuration mode or privileged EXEC mode.

show crypto key mypubkey dsa | rsa

Syntax Description

dsa	Specifies the key name.
rsa	Specifies the key name.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	—	•	—	—
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
9.0(1)	The **show crypto key mypubkey** command was introduced.

show crypto protocol statistics

To display the protocol-specific statistics in the crypto accelerator MIB, use the **show crypto protocol statistics** command in global configuration or privileged EXEC mode.

show crypto protocol statistics *protocol*

Syntax Description

protocol	Specifies the name of the protocol for which to display statistics. Protocol choices are as follows: **ikev1**—Internet Key Exchange version 1. **ipsec**—IP Security Phase-2 protocols. **ssl**—Secure Sockets Layer. **other**—Reserved for new protocols. **all**—All protocols currently supported.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	• —	—
Privileged EXEC	•	•	•	• —	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Examples

The following examples entered in global configuration mode, display crypto accelerator statistics for specified protocols:

```
hostname # show crypto protocol statistics ikev1
[IKEv1 statistics]
   Encrypt packet requests: 39
   Encapsulate packet requests: 39
   Decrypt packet requests: 35
   Decapsulate packet requests: 35
   HMAC calculation requests: 84
   SA creation requests: 1
   SA rekey requests: 3
    SA deletion requests: 2
```

```
   Next phase key allocation requests: 2
   Random number generation requests: 0
    Failed requests: 0

hostname # show crypto protocol statistics ipsec
[IPsec statistics]
   Encrypt packet requests: 700
   Encapsulate packet requests: 700
   Decrypt packet requests: 700
   Decapsulate packet requests: 700
   HMAC calculation requests: 1400
   SA creation requests: 2
   SA rekey requests: 0
   SA deletion requests: 0
   Next phase key allocation requests: 0
   Random number generation requests: 0
   Failed requests: 0

hostname # show crypto protocol statistics ssl
[SSL statistics]
   Encrypt packet requests: 0
   Encapsulate packet requests: 0
   Decrypt packet requests: 0
   Decapsulate packet requests: 0
   HMAC calculation requests: 0
   SA creation requests: 0
   SA rekey requests: 0
   SA deletion requests: 0
   Next phase key allocation requests: 0
   Random number generation requests: 0
   Failed requests: 0

hostname # show crypto protocol statistics other
[Other statistics]
   Encrypt packet requests: 0
   Encapsulate packet requests: 0
   Decrypt packet requests: 0
   Decapsulate packet requests: 0
   HMAC calculation requests: 0
   SA creation requests: 0
   SA rekey requests: 0
   SA deletion requests: 0
   Next phase key allocation requests: 0
   Random number generation requests: 99
   Failed requests: 0

hostname # show crypto protocol statistics all
[IKEv1 statistics]
   Encrypt packet requests: 46
   Encapsulate packet requests: 46
   Decrypt packet requests: 40
   Decapsulate packet requests: 40
   HMAC calculation requests: 91
    SA creation requests: 1
   SA rekey requests: 3
   SA deletion requests: 3
   Next phase key allocation requests: 2
   Random number generation requests: 0
   Failed requests: 0
[IKEv2 statistics]
   Encrypt packet requests: 0
   Encapsulate packet requests: 0
    Decrypt packet requests: 0
   Decapsulate packet requests: 0
```

```
   HMAC calculation requests: 0
   SA creation requests: 0
   SA rekey requests: 0
   SA deletion requests: 0
   Next phase key allocation requests: 0
   Random number generation requests: 0
   Failed requests: 0
[IPsec statistics]
   Encrypt packet requests: 700
   Encapsulate packet requests: 700
    Decrypt packet requests: 700
   Decapsulate packet requests: 700
   HMAC calculation requests: 1400
   SA creation requests: 2
   SA rekey requests: 0
   SA deletion requests: 0
   Next phase key allocation requests: 0
   Random number generation requests: 0
   Failed requests: 0
[SSL statistics]
   Encrypt packet requests: 0
   Encapsulate packet requests: 0
   Decrypt packet requests: 0
   Decapsulate packet requests: 0
   HMAC calculation requests: 0
   SA creation requests: 0
   SA rekey requests: 0
   SA deletion requests: 0
   Next phase key allocation requests: 0
   Random number generation requests: 0
   Failed requests: 0
[SSH statistics are not supported]
[SRTP statistics are not supported]
[Other statistics]
   Encrypt packet requests: 0
   Encapsulate packet requests: 0
   Decrypt packet requests: 0
   Decapsulate packet requests: 0
    HMAC calculation requests: 0
   SA creation requests: 0
   SA rekey requests: 0
   SA deletion requests: 0
   Next phase key allocation requests: 0
   Random number generation requests: 99
   Failed requests: 0
hostname #
```

Related Commands

Command	Description
clear crypto accelerator statistics	Clears the global and accelerator-specific statistics in the crypto accelerator MIB.
clear crypto protocol statistics	Clears the protocol-specific statistics in the crypto accelerator MIB.
show crypto accelerator statistics	Displays the global and accelerator-specific statistics from the crypto accelerator MIB.

show crypto sockets

To display crypto secure socket information, use the **show crypto sockets** command in global configuration mode or privileged EXEC mode.

show crypto sockets

Syntax Description

This command has no keywords or variables.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—
Privileged EXEC	•	•	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Examples

The following example, entered in global configuration mode, displays crypto secure socket information:

```
hostname(config)# show crypto sockets

Number of Crypto Socket connections 1

       Gi0/1  Peers: (local): 2001:1::1
                     (remote): ::
              Local Ident (addr/plen/port/prot): (2001:1::1/64/0/89)
              Remote Ident (addr/plen/port/prot): (::/0/0/89)
              IPsec Profile: "CSSU-UTF"
              Socket State: Open
              Client: "CSSU_App(UTF)" (Client State: Active)

       Crypto Sockets in Listen state:
```

The following table describes the fields in the **show crypto sockets** command output.

Field	Description
Number of Crypto Socket connections	Number of crypto sockets in the system.

Socket State	This state can be Open, which means that active IPsec security associations (SAs) exist, or it can be Closed, which means that no active IPsec SAs exist.
Client	Application name and its state.
Flags	If this field says “shared,” the socket is shared with more than one tunnel interface.
Crypto Sockets in Listen state	Name of the crypto IPsec profile.

Related Commands

Command	Description
show crypto ipsec policy	Displays the crypto secure socket API installed policy information.

show csc node-count

To display the number of nodes for which the CSC SSM scanned traffic, use the **show csc node-count** command in privileged EXEC mode:

show csc node-count [**yesterday**]

Syntax Description

yesterday	(Optional) Shows the number of nodes for which the CSC SSM scanned traffic in the preceding 24-hour period, from midnight to midnight.

Defaults

By default, the node count displayed is the number of nodes scanned since midnight.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

A node is any distinct source IP address or the address of a device that is on a network protected by the ASA. The ASA keeps track of a daily node count and communicates this to the CSC SSM for user license enforcement.

Examples

The following is sample output of the **show csc node-count** command, which displays the number of nodes for which the CSC SSM has scanned traffic since midnight:

```
hostname# show csc node-count
Current node count is 1
```

The following is sample output of the **show csc node-count** command, which displays the number of nodes for which the CSC SSM scanned traffic in the preceding 24-hour period, from midnight to midnight:

```
hostname(config)# show csc node-count yesterday
Yesterday's node count is 2
```

Related Commands

csc	Sends network traffic to the CSC SSM for scanning of FTP, HTTP, POP3, and SMTP, as configured on the CSC SSM.
show running-config class-map	Shows current class map configuration.
show running-config policy-map	Shows the current policy map configuration.
show running-config service-policy	Shows the current service policy configuration.

show ctiqbe

To display information about CTIQBE sessions established across the ASA, use the **show ctiqbe** command in privileged EXEC mode.

show ctiqbe

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **show ctiqbe** command displays information of CTIQBE sessions established across the ASA. Along with **debug ctiqbe** and **show local-host**, this command is used for troubleshooting CTIQBE inspection engine issues.

Note We recommend that you have the **pager** command configured before using the **show ctiqbe** command. If there are a lot of CTIQBE sessions and the **pager** command is not configured, it can take a while for the **show ctiqbe** command output to reach the end.

Examples

The following is sample output from the **show ctiqbe** command under the following conditions. There is only one active CTIQBE session setup across the ASA. It is established between an internal CTI device (for example, a Cisco IP SoftPhone) at local address 10.0.0.99 and an external Cisco Call Manager at 172.29.1.77, where TCP port 2748 is the Cisco CallManager. The heartbeat interval for the session is 120 seconds.

```
hostname# show ctiqbe

Total: 1
  LOCAL  FOREIGN  STATE  HEARTBEAT
-----------------------------------------------------------
1  10.0.0.99/1117   172.29.1.77/2748  1  120
  RTP/RTCP: PAT xlates: mapped to 172.29.1.99(1028  1029)
```

```
|MEDIA: Device ID 27|Call ID 0
|Foreign 172.29.1.99|(1028|1029)
|Local|172.29.1.88|(26822|26823)
|------------------------------------------
```

The CTI device has already registered with the CallManager. The device internal address and RTP listening port is PATed to 172.29.1.99 UDP port 1028. Its RTCP listening port is PATed to UDP 1029.

The line beginning with `RTP/RTCP: PAT xlates:` appears only if an internal CTI device has registered with an external CallManager and the CTI device address and ports are PATed to that external interface. This line does not appear if the CallManager is located on an internal interface, or if the internal CTI device address and ports are NATed to the same external interface that is used by the CallManager.

The output indicates a call has been established between this CTI device and another phone at 172.29.1.88. The RTP and RTCP listening ports of the other phone are UDP 26822 and 26823. The other phone locates on the same interface as the CallManager because the ASA does not maintain a CTIQBE session record associated with the second phone and CallManager. The active call leg on the CTI device side can be identified with Device ID 27 and Call ID 0.

The following is the xlate information for these CTIBQE connections:

```
hostname# show xlate debug
3 in use, 3 most used
Flags: D|DNS, d|dump, I|identity, i|inside, n|no random,
|o|outside, r|portmap, s|static
TCP PAT from inside:10.0.0.99/1117 to outside:172.29.1.99/1025 flags ri idle 0:00:22
timeout 0:00:30
UDP PAT from inside:10.0.0.99/16908 to outside:172.29.1.99/1028 flags ri idle 0:00:00
timeout 0:04:10
UDP PAT from inside:10.0.0.99/16909 to outside:172.29.1.99/1029 flags ri idle 0:00:23
timeout 0:04:10
hostname#
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
inspect ctiqbe	Enables CTIQBE application inspection.
service-policy	Applies a policy map to one or more interfaces.
show conn	Displays the connection state for different connection types.
timeout	Sets the maximum idle time duration for different protocols and session types.

show ctl-file

To show the contents of the CTL file used by the phone proxy, use the **show ctl-file** command in global configuration mode.

show ctl-file *filename* [**parsed**]

Syntax Description

filename	Displays the phones capable of secure mode stored in the database.
parsed	(Optional) Displays detailed information from the CTL file specified.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
8.2(1)	The command was introduced.

Usage Guidelines

When specifying the filename of the CTL file stored in Flash memory, specify the disk number, filename, and extension; for example: `disk0:/testctl.tlv`. Using the **show ctl-file** command is useful for debugging when configuring the phone proxy instance.

Examples

The following example shows the use of the **show ctl-file** command to show general information about the CTL file:

```
hostname# show ctl-file disk0:/ctlfile.tlv
Total Number of Records: 1
CTL Record Number 1
  Subject Name:
     serialNumber=JMX1215L2TX+hostname=ciscoasa
  Issuer Name:
     serialNumber=JMX1215L2TX+hostname=ciscoasa
  Function:
     cucm
  IP Address:
     192.168.52.102
  Associated Trustpoint:
     cucm_primary
```

The following example shows the use of the **show ctl-file** command to show detailed information about the CTL file:

```
hostname# show ctl-file disk0:/ctlfile.tlv parsed
TAG 0x01: Version: Maj 1, Min 2
TAG 0x02: Header Len: Len 288
TAG 0x03: Signer ID: Len 103
TAG 0x04: Signer Name: Len 45 Name: <cn=_internal_myctl_SAST_0,ou=STG,o=Cisco Inc>
TAG 0x05: Cert SN: Len 4 SN: c43c9048
TAG 0x06: CA Name: Len 45 Name: <cn=_internal_myctl_SAST_0,ou=STG,o=Cisco Inc>
TAG 0x07: Signature: Len 15
TAG 0x08: Digest Alg: Len 1 Name: SHA-1
TAG 0x09: Sig Alg Info: Len 8
TAG 0x0A: Sig Alg: Len 1 Name: RSA
TAG 0x0B: Modulus: Len 1 Name: 1024
TAG 0x0C: Sig Block: Len 128 Signature:
    521debcf b7a77ea8 94eba5f7 f3c8b0d8 3337a9fa 267ce1a7 202b2c8b 2ac980d3
    9608f64d e7cd82df e205e5bf 74a1d9c4 fae20f90 f3d2746a e90f439e ef93fca7
    d4925551 72daa414 2c55f249 ef7e6dc2 bcb9f9b5 39be8238 5011eecb ce37e4d1
    866e6550 6779c3fd 25c8bab0 6e9be32c 7f79fe34 5575e3af ea039145 45ce3158

TAG 0x0E: File Name: Len 12 Name: <CTLFile.tlv>
TAG 0x0F: Timestamp: Len 4 Timestamp: 48903cc6

 ### CTL RECORD No. 1 ###
TAG 0x01: Rcd Len: Len 731
TAG 0x03: Sub Name: Len 43 Sub Name: <serialNumber=JMX1215L2TX+hostname=ciscoasa>
TAG 0x04: Function: Len 2 Func: CCM
TAG 0x05: Cert Issuer: Len 43 Issuer Name: <serialNumber=JMX1215L2TX+hostname=ciscoasa>
TAG 0x06: Cert SN: Len 4 Cert SN: 15379048
TAG 0x07: Pub Key: Len 140 Pub Key:
    30818902 818100ad a752b4e6 89769a49 13115e52 1209b3ef 96a179af 728c29d7
    af7fed4e c759d0ea cebd7587 dd4f7c4c 322da86b 3a677c08 ce39ce60 2525f6d2
    50fe87cf 2aea60a5 690ec985 10706e5a 30ad26db e6fdb243 159758ed bb487525
    f901ef4a 658445de 29981546 3867d2d1 ce519ee4 62c7be32 51037c3c 751c0ad6
    040bedbb 3e984502 03010001
TAG 0x09: Cert: Len 469 X.509v3 Cert:
    308201d1 3082013a a0030201 02020415 37904830 0d06092a 864886f7 0d010104
    0500302d 312b3012 06035504 05130b4a 4d583132 31354c32 54583015 06092a86
    4886f70d 01090216 08636973 636f6173 61301e17 0d303830 37333030 39343033
    375a170d 31383037 32383039 34303337 5a302d31 2b301206 03550405 130b4a4d
    58313231 354c3254 58301506 092a8648 86f70d01 09021608 63697363 6f617361
    30819f30 0d06092a 864886f7 0d010101 05000381 8d003081 89028181 00ada752
    b4e68976 9a491311 5e521209 b3ef96a1 79af728c 29d7af7f ed4ec759 d0eacebd
    7587dd4f 7c4c322d a86b3a67 7c08ce39 ce602525 f6d250fe 87cf2aea 60a5690e
    c9851070 6e5a30ad 26dbe6fd b2431597 58edbb48 7525f901 ef4a6584 45de2998
    15463867 d2d1ce51 9ee462c7 be325103 7c3c751c 0ad6040b edbb3e98 45020301
    0001300d 06092a86 4886f70d 01010405 00038181 005d82b7 ac45dbf8 bd911d4d
    a330454a a2784a4b 5ef898b1 482e0bbf 4a86ed86 9019820b 00e80361 fd7b2518
    9efa746c b98b1e23 fcc0793c de48de6d 6b1a4998 cd6f4e66 ba661d3a d200739a
    ae679c7c 94f550fb a6381b94 1eae389e a9ec4b11 30ba31f3 33cd184e 25647174
    ce00231d 102d5db3 c9c111a6 df37eb43 66f3d2d5 46
TAG 0x0A: IP Addr: Len 4 IP Addr: 192.168.52.102
```

Related Commands

Command	Description
ctl-file (global)	Specifies the CTL instance to create for the phone proxy or parses the CTL file stored in Flash memory.
ctl-file (phone-proxy)	Specifies the CTL instance to use when configuring the phone proxy.
phone proxy	Configures the Phone Proxy instance.

show cts environment-data

To show the health and status of the environment data refresh operation on the ASA for Cisco TrustSec, use the **show cts environment-data** command in privileged EXEC mode.

show cts environment-data

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

This command is not supported on a standby device in a failover configuration. If you enter this command on a standby device, the following error message appears:

```
ERROR: This command is only permitted on the active device.
```

This command is only supported on the master unit in a clustering configuration. If you enter this command on a slave unit, the following error message appears:

```
This command is only permitted on the master device.
```

Examples

The following is sample output from the **show cts environment-data** command

```
hostname# show cts environment-data

CTS Environment Data
====================
Status:                    Active
Last download attempt:     Successful
Environment Data Lifetime: 1200 secs
Last update time:          18:12:07 EST Feb 27 2012
Env-data expires in:       0:00:12:24 (dd:hr:mm:sec)
Env-data refreshes in:     0:00:02:24 (dd:hr:mm:sec)
```

Related Commands

Commands	Description
show running-config cts	Shows the SXP connections for the running configuration.
show cts pac	Shows the components on the PAC.

show cts environment-data sg-table

To show the resident security group table on the ASA for Cisco TrustSec, use the **show cts environment-data sg-table** command in privileged EXEC mode.

show cts environment-data sg-table

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

This command is not supported on a standby device in a failover configuration. If you enter this command on a standby device, the following error message appears:

```
ERROR: This command is only permitted on the active device.
```

This command is only supported on the master unit in a clustering configuration. If you enter this command on a slave unit, the following error message appears:

```
This command is only permitted on the master device.
```

Examples

The following is sample output from the **show cts environment-data sg-table** command

```
hostname# show cts environment-data sg-table

Security Group Table:
Valid until: 18:32:07 EST Feb 27 2012
Showing 9 of 9 entries

SG Name                         SG Tag     Type
-------                         ------     -------------
ANY                              65535     unicast
ExampleSG1                           2     unicast
ExampleSG13                         14     unicast
ExampleSG14                         15     unicast
```

```
ExampleSG15                          16     unicast
ExampleSG16                          17     unicast
ExampleSG17                          18     unicast
ExampleSG18                          19     unicast
Unknown                               0     unicast
```

Related Commands

Commands	Description
show running-config cts	Shows the SXP connections for the running configuration.
show cts pac	Shows the components on the PAC.

show cts pac

To show the components of the Protected Access Credential (PAC) on the ASA for Cisco TrustSec, use the **show cts pac** command in privileged EXEC mode.

show cts pac

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

The **show cts pac** command displays PAC information, including the expiration time. The expiration time is important because the ASA cannot retrieve security group table updates after the PAC lifetime lapses. The administrator must request and install a new PAC before the old one expires to maintain synchronization with the security group table on the Identity Services Engine.

This command is not supported on a standby device in a failover configuration. If you enter this command on a standby device, the following error message appears:

```
ERROR: This command is only permitted on the active device.
```

This command is only supported on the master unit in a clustering configuration. If you enter this command on a slave unit, the following error message appears:

```
This command is only permitted on the master device.
```

Examples

The following is sample output from the **show cts pac** command

```
hostname# show cts pac
PAC-Info:
    Valid until: Jul 28 2012 08:03:23
    AID:         6499578bc0240a3d8bd6591127ab270c
    I-ID:        BrianASA36
    A-ID-Info:   Identity Services Engine
    PAC-type:    Cisco Trustsec
```

```
PAC-Opaque:
  000200b000030001000400106499578bc0240a3d8bd6591127ab270c00060094000301
  00d75a3f2293ff3b1310803b9967540ff7000000134e2d2deb00093a803d227383e2b9
  7db59ed2eeac4e469fcb1eeb0ac2dd84e76e13342a4c2f1081c06d493e192616d43611
  8ff93d2af9b9135bb95127e8b9989db36cf1667b4fe6c284e220c11e1f7dbab91721d1
  00e9f47231078288dab83a342ce176ed2410f1249780882a147cc087942f52238fc9b4
  09100e1758
```

Related Commands

Commands	Description
show running-config cts	Shows the SXP connections for the running configuration.
show cts environment	Shows the health and status of the environment data refresh operation.

show cts sgt-map

To show the IP address-security group table manager entries in the control path, use the **show cts sgt-map** command in privileged EXEC mode.

show cts sgt-map [**sgt** *sgt*] [**address** *ipv4* **| address** *ipv6* [*/prefix*] **| ipv4 | ipv6**] [**name**] [**brief | detail**]

Syntax Description

address i*pv4*/*ipv6* */prefix*	Shows only IP address-security group table mapping for the specific IPv4 or IPv6 address or subnet.
brief	Shows the IP address-security group table mapping summary.
detail	Shows the IP address-security group table mapping.
ipv4	Shows the IPv4 address-security group table mapping. By default, only the IPv4 address-security group table mapping is displayed.
ipv6	Shows the IPv6 address-security group table mapping.
name	Shows IP address-security group table mapping with the matched security group name.
sgt *sgt*	Shows only IP address-security group table mapping with the matched security group table.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
9.01)	The command was introduced.

Usage Guidelines

This command displays the IP address-security group table manager entries in the control path.

Examples

The following is sample output from the **show cts sgt-map ipv6** command:

```
hostname# show cts sgt-map ipv6
Active IP-SGT Bindings Information

IP Address                                SGT     Source
============================================================
```

```
3330::1                                 17      SXP
FE80::A8BB:CCFF:FE00:110                17      SXP

IP-SGT Active Bindings Summary
============================================
Total number of SXP    bindings = 2
Total number of active   bindings = 2
```

The following is sample output from the **show cts sgt-map ipv6 detail** command:

```
hostname# show cts sgt-map ipv6 detail
Active IP-SGT Bindings Information

IP Address                  Security Group                          Source
================================================================================
3330::1                      2345                                    SXP
1280::A8BB:CCFF:FE00:110    Security Tech Business Unit(12345)      SXP

IP-SGT Active Bindings Summary
==================================
Total number of SXP bindings    = 2
Total number of active bindings = 2
```

The following is sample output from the **show cts sgt-map ipv6 brief** command:

```
hostname# show cts sgt-map ipv6 brief
Active IP-SGT Bindings Information

IP-SGT Active Bindings Summary
==================================
Total number of SXP bindings    = 2
Total number of active bindings = 2
```

The following is sample output from the **show cts sgt-map address** command:

```
hostname# show cts sgt-map address 10.10.10.5 mask 255.255.255.255

Active IP-SGT Bindings Information

IP Address              SGT     Source
============================================================
10.10.10.5              1234    SXP

IP-SGT Active Bindings Summary
============================================
Total number of SXP    bindings = 1
Total number of active   bindings = 1
```

Related Commands

Command	Description
show running-config cts	Shows the SXP connections for the running configuration.
show cts environment	Shows the health and status of the environment data refresh operation.

show cts sxp connections

To show the Security eXchange Protocol (SXP) connections on the ASA, use the **show cts sxp connections** command in privileged EXEC mode.

show cts sxp connections [**peer** *peer addr*] [**local** *local addr*] [**ipv4 | ipv6**] [**status** {**on | off | delete-hold-down | pending-on**}] [**mode** {**speaker | listener**}] [**brief**]

Syntax Description

brief	(Optional) Shows the SXP connection summary.
delete-hold-down	(Optional) The TCP connection was terminated (TCP is down) when it was in the ON state. Only an ASA configured in listener mode can be in this state.
ipv4	(Optional) Shows SXP connections with IPv4 addresses.
ipv6	(Optional) Shows SXP connections with IPv6 addresses.
listener	(Optional) Shows the ASA configured in listener mode.
local *local addr*	(Optional) Shows SXP connections with the matched local IP addresses.
mode	(Optional) Shows SXP connections with the matched mode.
off	(Optional) The TCP connection has not been initiated. The ASA retries the TCP connection only in this state.
on	(Optional) An SXP OPEN or SXP OPEN RESP message has been received. The SXP connection has been successfully established. The ASA only exchanges SXP messages in this state.
peer *peer addr*	(Optional) Shows SXP connections with the matched peer IP addresses.
pending-on	(Optional) An SXP OPEN message has been sent to the peer; the response from the peer is being awaited.
speaker	(Optional) Shows the ASA configured in speaker mode.
status	(Optional) Shows SXP connections with the matched status.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Provileged EXEC	•	•	•	•	—

Command History

Release	Modification
9.0(1)	The command was introduced.

Usage Guidelines

The SXP states change under the following conditions:

- If the SXP listener drops its SXP connection because its peer unconfigures SXP or disables SXP, then the SXP listener moves to the OFF state.
- If the SXP listener drops its SXP connection because its peer crashes or has the interface shut down, then the SXP listener moves to the DELETE_HOLD_DOWN state.
- The SXP speaker moves to the OFF state when either of the first two conditions occurs.

This command is not supported on a standby device in a failover configuration. If you enter this command on a standby device, the following error message appears:

```
ERROR: This command is only permitted on the active device.
```

This command is only supported on the master unit in a clustering configuration. If you enter this command on a slave unit, the following error message appears:

```
This command is only permitted on the master device.
```

Examples

The following is sample output from the **show cts sxp connections** command:

```
hostname# show cts sxp connections
SXP                : Enabled
Highest version    : 2
Default password   : Set
Default local IP   : Not Set
Reconcile period   : 120 secs
Retry open period  : 10 secs
Retry open timer   : Not Running
Total number of SXP connections : 3
Total number of SXP connection shown : 3
----------------------------------------------
Peer IP            : 2.2.2.1
Local IP           : 2.2.2.2
Conn status        : On
Local mode         : Listener
Ins number         : 1
TCP conn password  : Default
Delete hold down timer : Not Running
Reconciliation timer   : Not Running
Duration since last state change: 0:00:01:25 (dd:hr:mm:sec)
----------------------------------------------
Peer IP            : 3.3.3.1
Local IP           : 3.3.3.2
Conn status        : On
Local mode         : Listener
Ins number         : 2
TCP conn password  : None
Delete hold down timer : Not Running
Reconciliation timer   : Not Running
Duration since last state change: 0:01:02:20 (dd:hr:mm:sec)
----------------------------------------------
Peer IP            : 4.4.4.1
Local IP           : 4.4.4.2
Conn status        : On
Local mode         : Speaker
Ins number         : 1
TCP conn password  : Set
Delete hold down timer : Not Running
Reconciliation timer   : Not Running
Duration since last state change: 0:03:01:20 (dd:hr:mm:sec)
```

Related Commands

Command	Description
show running-config cts	Shows the SXP connections for the running configuration.
show cts environment	Shows the health and status of the environment data refresh operation.

show cts sxp sgt-map

To show the current IP address-security group table mapping database entries in the Security eXchange Protocol (SXP) module on the ASA for Cisco TrustSec, use the **show cts sxp sgt-map** command in privileged EXEC mode.

show cts sxp sgt-map [**peer** *peer_addr*] [**sgt** *sgt*] [**address** *ipv4* | **address** *ipv6* [*/prefix*] | **ipv4** | **ipv6**] [**name**] [**brief** | **detail**] [**status**]

Syntax Description

address i*pv4*/*ipv6* */prefix*	Shows only IP address-security group table mapping for the specific IPv4 or IPv6 address or subnet.
brief	Shows the IP address-security group table mapping summary.
detail	Shows the security group table information. If a security group name is not available, only the security group table value is displayed without the bracket.
ipv4	Shows the IP address-security group table mapping with IPv4 addresses. By default, only the IP address-security group table mapping with IPv4 addresses is displayed.
ipv6	Shows the IP address-security group table mapping with IPv6 addresses.
name	Shows IP address-security group table mapping with the matched security group name.
peer *peer addr*	Shows only IP address-security group table mapping with the matched peer IP address.
sgt *sgt*	Shows only IP address-security group table mapping with the matched security group table.
status	Shows active or inactive mapped entries.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
9.01)	The command was introduced.

Usage Guidelines

This command displays the active IP address-security group table mapped entries consolidated from SXP.

This command is not supported on a standby device in a failover configuration. If you enter this command on a standby device, the following error message appears:

```
ERROR: This command is only permitted on the active device.
```

This command is only supported on the master unit in a clustering configuration. If you enter this command on a slave unit, the following error message appears:

```
This command is only permitted on the master device.
```

Examples

The following is sample output from the **show cts sxp sgt-map** command:

```
hostname# show cts sxp sgt-map
Total number of IP-SGT mappings : 3

SGT        : 7
IPv4       : 2.2.2.1
Peer IP    : 2.2.2.1
Ins Num    : 1

SGT        : 7
IPv4       : 2.2.2.0
Peer IP    : 3.3.3.1
Ins Num    : 1

SGT        : 7
IPv6       : FE80::A8BB:CCFF:FE00:110
Peer IP    : 2.2.2.1
Ins Num    : 1
```

The following is sample output from the **show cts sxp sgt-map detail** command:

```
hostname# show cts sxp sgt-map detail
Total number of IP-SGT mappings : 3

SGT        : STBU(7)
IPv4       : 2.2.2.1
Peer IP    : 2.2.2.1
Ins Num    : 1
Status     : Active

SGT        : STBU(7)
IPv4       : 2.2.2.0
Peer IP    : 3.3.3.1
Ins Num    : 1
Status     : Inactive

SGT        : 6
IPv6       : 1234::A8BB:CCFF:FE00:110
Peer IP    : 2.2.2.1
Ins Num    : 1
Status     : Active
```

The following is sample output from the **show cts sxp sgt-map brief** command:

```
hostname# show cts sxp sgt-map brief
Total number of IP-SGT mappings : 3
SGT, IPv4: 7, 2.2.2.1
SGT, IPv4: 7, 3.3.3.0
SGT, IPv6: 7, FE80::A8BB:CCFF:FE00:110
```

Related Commands

Command	Description
show running-config cts	Shows the SXP connections for the running configuration.
show cts environment	Shows the health and status of the environment data refresh operation.

show curpriv

To display the current user privileges, use the **show curpriv** command:

show curpriv

Syntax Description

This command has no arguments or keywords.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	—	—	•
Privileged EXEC	•	•	—	—	•
User EXEC	•	•	—	—	•

Command History

Release	Modification
7.0(1)	Modified to conform to CLI guidelines.

Usage Guidelines

The **show curpriv** command displays the current privilege level. Lower privilege level numbers indicate lower privilege levels.

Examples

These examples show output from the **show curpriv** command when a user named enable_15 is at different privilege levels. The username indicates the name that the user entered when the user logged in. P_PRIV indicates that the user has entered the **enable** command. P_CONF indicates that the user has entered the **config terminal** command.

```
hostname(config)# show curpriv
Username : enable_15
Current privilege level : 15
Current Mode/s : P_PRIV P_CONF
hostname(config)# exit

hostname(config)# show curpriv
Username : enable_15
Current privilege level : 15
Current Mode/s : P_PRIV
hostname(config)# exit

hostname(config)# show curpriv
Username : enable_1
```

```
Current privilege level : 1
Current Mode/s : P_UNPR
hostname(config)#
```

The following example shows a known behavior. When you are in enable mode, then enter disable mode, the initial logged-in username is replaced with enable_1:

```
hostname(config)# show curpriv
Username : enable_15
Current privilege level : 15
Current Mode/s : P_PRIV P_CONF
hostname(config)# exit
hostname# show curpriv
Username : enable_15
Current privilege level : 15
Current Mode/s : P_PRIV
hostname# exit

Logoff

Type help or '?' for a list of available commands.
hostname# show curpriv
Username : enable_1
Current privilege level : 1
Current Mode/s : P_UNPR
hostname#
```

Related Commands

Command	Description
clear configure privilege	Remove privilege command statements from the configuration.
show running-config privilege	Display privilege levels for commands.

CHAPTER 48

show ddns update interface through show environment Commands

show ddns update interface

To display the DDNS methods assigned to ASA interfaces, use the **show ddns update interface** command in privileged EXEC mode.

show ddns update interface [*interface-name*]

Syntax Description

interface-name	(Optional) The name of a network interface.

Defaults

Omitting the *interface-name* string displays the DDNS method assigned to each interface.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example displays the DDNS method assigned to the inside interface:

```
hostname# show ddns update interface inside
Dynamic DNS Update on inside:
  Update Method Name            Update Destination
  ddns-2                        not available
hostname#
```

Related Commands

Command	Description
ddns (DDNS-update-method mode)	Specifies a DDNS update method type for a created DDNS method.
ddns update (interface config mode)	Associates an ASA interface with a DDNS update method or a DDNS update hostname.
ddns update method (global config mode)	Creates a method for dynamically updating DNS resource records.
show ddns update method	Displays the type and interval for each configured DDNS method. a DHCP server to perform DDNS updates.
show running-config ddns	Displays the type and interval of all configured DDNS methods in the running configuration.

show ddns update method

To display the DDNS update methods in the running configuration, use the **show ddns update method** command in privileged EXEC mode.

show ddns update method [*method-name*]

Syntax Description

method-name	(Optional) The name of a configured DDNS update method.

Defaults

Omitting the *method-name* string displays all configured DDNS update methods.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example displays the DDNS method named ddns-2:

```
hostname(config)# show ddns update method ddns-2

Dynamic DNS Update Method: ddns-2
  IETF standardized Dynamic DNS 'A' and 'PTR' records update
  Maximum update interval: 0 days 0 hours 10 minutes 0 seconds
hostname(config)#
```

Related Commands

Command	Description
ddns (DDNS-update-method mode)	Specifies a DDNS update method type for a created DDNS method.
ddns update (interface config mode)	Associates a ASA interface with a Dynamic DNS (DDNS) update method or a DDNS update hostname.
ddns update method (global config mode)	Creates a method for dynamically updating DNS resource records.
show ddns update interface	Displays the interfaces associated with each configured DDNS method.
show running-config ddns	Displays the type and interval of all configured DDNS methods in the running configuration.

show debug

To show the current debugging configuration, use the **show debug** command.

show debug [*command* [*keywords*]]

Syntax Description

command	(Optional) Specifies the **debug** command whose current configuration you want to view.
keywords	(Optional) For each *command*, the *keywords* following the *command* are identical to the *keywords* supported by the associated **debug** command.

Defaults

This command has no default settings.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.
8.0(2)	The **eigrp** keyword was added to the list of possible command values.
8.4(1)	The **route** keyword was added to the list of possible command values.

Usage Guidelines

For each *command*, the *keywords* following the *command* are identical to the *keywords* supported by the associated **debug** command. For information about the supported syntax, see the associated **debug** command.

Note The availability of each *command* depends on the command modes that support the applicable **debug** command.

The valid *command* values are as follows:

- **aaa**
- **appfw**
- **arp**
- **asdm**
- **context**
- **crypto**

- **ctiqbe**
- **ctm**
- **dhcpc**
- **dhcpd**
- **dhcprelay**
- **disk**
- **dns**
- **eigrp**
- **email**
- **entity**
- **fixup**
- **fover**
- **fsm**
- **ftp**
- **generic**
- **gtp**
- **h323**
- **http**
- **http-map**
- **icmp**
- **igmp**
- **ils**
- **imagemgr**
- **ipsec-over-tcp**
- **ipv6**
- **iua-proxy**
- **kerberos**
- **ldap**
- **mfib**
- **mgcp**
- **mrib**
- **ntdomain**
- **ntp**
- **ospf**
- **parser**
- **pim**
- **pix**
- **pptp**

- **radius**
- **rip**
- **route**
- **rtsp**
- **sdi**
- **sequence**
- **sip**
- **skinny**
- **smtp**
- **sqlnet**
- **ssh**
- **ssl**
- **sunrpc**
- **tacacs**
- **timestamps**
- **vpn-sessiondb**
- **webvpn**
- **xdmcp**
- **xml**

Examples

You can use the **show debug** command to view all debugging configurations, a debugging configuration for a specific feature, and a debugging configuration for a portion of a feature.

The following commands enable debugging for authentication, accounting, and flash memory:

```
hostname# debug aaa authentication
debug aaa authentication enabled at level 1
hostname# debug aaa accounting
debug aaa accounting enabled at level 1
hostname# debug disk filesystem
debug disk filesystem enabled at level 1
hostname# show debug
debug aaa authentication enabled at level 1
debug aaa accounting enabled at level 1
debug disk filesystem enabled at level 1
hostname# show debug aaa
debug aaa authentication enabled at level 1
debug aaa authorization is disabled.
debug aaa accounting enabled at level 1
debug aaa internal is disabled.
debug aaa vpn is disabled.
hostname# show debug aaa accounting
debug aaa accounting enabled at level 1
hostname#
```

Related Commands

Command	Description
debug	Displays all **debug** commands.

show debug mmp

To display current debug settings for the MMP inspection module, use the **show debug mmp** command in privileged EXEC mode.

show debug mmp

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.0(4)	The command was introduced.

Examples

The following example shows the use of the **show debug mmp** command to displaythe current debug settings for the MMP inspection module:

```
hostname# show debug mmp
debug mmp  enabled at level 1
```

Related Commands

Command	Description
debug mmp	Display inspect MMP events.
inspect mmp	Configures the MMP inspection engine.

show dhcpd

To view DHCP binding, state, and statistical information, use the **show dhcpd** command in privileged EXEC or global configuration mode.

show dhcpd {**binding** [*IP_address*] | **state** | **statistics**}

Syntax Description

binding	Displays binding information for a given server IP address and its associated client hardware address and lease length.
IP_address	Shows the binding information for the specified IP address.
state	Displays the state of the DHCP server, such as whether it is enabled in the current context and whether it is enabled on each of the interfaces.
statistics	Displays statistical information, such as the number of address pools, bindings, expired bindings, malformed messages, sent messages, and received messages.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

If you include the optional IP address in the **show dhcpd binding** command, only the binding for that IP address is shown.

The **show dhcpd binding | state | statistics** commands are also available in global configuration mode.

Examples

The following is sample output from the **show dhcpd binding** command:

```
hostname# show dhcpd binding
IP Address Client-id       Lease Expiration Type
10.0.1.100 0100.a0c9.868e.43 84985 seconds automatic
```

The following is sample output from the **show dhcpd state** command:

```
hostname# show dhcpd state
Context Not Configured for DHCP
Interface outside, Not Configured for DHCP
```

```
Interface inside, Not Configured for DHCP
```

The following is sample output from the **show dhcpd statistics** command:

```
hostname# show dhcpd statistics

DHCP UDP Unreachable Errors: 0
DHCP Other UDP Errors: 0

Address pools        1
Automatic bindings   1
Expired bindings     1
Malformed messages   0

Message              Received
BOOTREQUEST          0
DHCPDISCOVER         1
DHCPREQUEST          2
DHCPDECLINE          0
DHCPRELEASE          0
DHCPINFORM           0

Message              Sent
BOOTREPLY            0
DHCPOFFER            1
DHCPACK              1
DHCPNAK              1
```

Related Commands

Command	Description
clear configure dhcpd	Removes all DHCP server settings.
clear dhcpd	Clears the DHCP server bindings and statistic counters.
dhcpd lease	Defines the lease length for DHCP information granted to clients.
show running-config dhcpd	Displays the current DHCP server configuration.

show dhcprelay state

To view the state of the DHCP relay agent, use the **show dhcprelay state** command in privileged EXEC or global configuration mode.

show dhcprelay state

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command displays the DHCP relay agent state information for the current context and each interface.

Examples

The following is sample output from the **show dhcprelay state** command:

```
hostname# show dhcprelay state

Context  Configured as DHCP Relay
Interface outside, Not Configured for DHCP
Interface infrastructure, Configured for DHCP RELAY SERVER
Interface inside, Configured for DHCP RELAY
```

Related Commands

Command	Description
show dhcpd	Displays DHCP server statistics and state information.
show dhcprelay statistics	Displays the DHCP relay statistics.
show running-config dhcprelay	Displays the current DHCP relay agent configuration.

show dhcprelay statistics

To display the DHCP relay statistics, use the **show dhcprelay statistics** command in privileged EXEC mode.

show dhcprelay statistics

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The output of the **show dhcprelay statistics** command increments until you enter the **clear dhcprelay statistics** command.

Examples

The following shows sample output for the **show dhcprelay statistics** command:

```
hostname# show dhcprelay statistics

DHCP UDP Unreachable Errors: 0
DHCP Other UDP Errors: 0

Packets Relayed
BOOTREQUEST          0
DHCPDISCOVER         7
DHCPREQUEST          3
DHCPDECLINE          0
DHCPRELEASE          0
DHCPINFORM           0

BOOTREPLY            0
DHCPOFFER            7
DHCPACK              3
DHCPNAK              0
hostname#
```

Related Commands

Command	Description
clear configure dhcprelay	Removes all DHCP relay agent settings.
clear dhcprelay statistics	Clears the DHCP relay agent statistic counters.
debug dhcprelay	Displays debug information for the DHCP relay agent.
show dhcprelay state	Displays the state of the DHCP relay agent.
show running-config dhcprelay	Displays the current DHCP relay agent configuration.

show disk

To display the contents of the flash memory for the adaptive security appliance only, use the **show disk** command in privileged EXEC mode.

show disk[**0 | 1**] [**filesys | all**] **controller**

Syntax Description

**0	1**	Specifies the internal flash memory (0, the default) or the external flash memory (1).
all	Shows the contents of flash memory plus the file system information.
controller	Specifies the flash controller model number.
filesys	Shows information about the compact flash card.

Defaults

By default, this command shows the internal flash memory.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show disk** command:

```
hostname# show disk
-#- --length-- -----date/time------ path
 11 1301       Feb 21 2005 18:01:34 test.cfg
 12 1949       Feb 21 2005 20:13:36 test1.cfg
 13 2551       Jan 06 2005 10:07:36 test2.cfg
 14 609223     Jan 21 2005 07:14:18 test3.cfg
 15 1619       Jul 16 2004 16:06:48 test4.cfg
 16 3184       Aug 03 2004 07:07:00 old_running.cfg
 17 4787       Mar 04 2005 12:32:18 test5.cfg
 20 1792       Jan 21 2005 07:29:24 test6.cfg
 21 7765184    Mar 07 2005 19:38:30 test7.cfg
 22 1674       Nov 11 2004 02:47:52 test8.cfg
 23 1863       Jan 21 2005 07:29:18 test9.cfg
 24 1197       Jan 19 2005 08:17:48 test10.cfg
 25 608554     Jan 13 2005 06:20:54 backupconfig.cfg
 26 5124096    Feb 20 2005 08:49:28 cdisk1
 27 5124096    Mar 01 2005 17:59:56 cdisk2
 28 2074       Jan 13 2005 08:13:26 test11.cfg
 29 5124096    Mar 07 2005 19:56:58 cdisk3
```

```
 30 1276       Jan 28 2005 08:31:58 lead
 31 7756788    Feb 24 2005 12:59:46 asdmfile.dbg
 32 7579792    Mar 08 2005 11:06:56 asdmfile1.dbg
 33 7764344    Mar 04 2005 12:17:46 asdmfile2.dbg
 34 5124096    Feb 24 2005 11:50:50 cdisk4
 35 15322      Mar 04 2005 12:30:24 hs_err.log

10170368 bytes available (52711424 bytes used)
```

The following is sample output from the **show disk filesys** command:

```
hostname# show disk filesys
******** Flash Card Geometry/Format Info ********

COMPACT FLASH CARD GEOMETRY
   Number of Heads:            4
   Number of Cylinders       978
   Sectors per Cylinder       32
   Sector Size               512
   Total Sectors          125184

COMPACT FLASH CARD FORMAT
   Number of FAT Sectors      61
   Sectors Per Cluster         8
   Number of Clusters      15352
   Number of Data Sectors 122976
   Base Root Sector          123
   Base FAT Sector             1
   Base Data Sector          155
```

The following is sample output from the **show disk controller** command:

```
hostname# show disk:1 controller
Flash Model: TOSHIBA THNCF064MBA
```

Related Commands

Command	Description
dir	Displays the directory contents.

show dns

To show the current resolved DNS addresses for all or specified fully qualified domain name (FQDN) hosts, use the **show dns** command in privileged EXEC mode.

show dns [**host** *fqdn_name*]

Syntax Description

fqdn_name	(Optional) Specifies the FQDN of the selected host.
host	(Optional) Indicates the IP address of the specified host.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Examples

The following is sample output from the **show dns** command:

```
hostname# show dns
Name:   www.example1.com
  Address: 10.1.3.1                              TTL 00:03:01
  Address: 10.1.3.3                              TTL 00:00:36
  Address: 10.4.1.2                              TTL 00:01:01
Name: www.example2.com
  Address: 10.2.4.1                              TTL 00:25:13
  Address: 10.5.2.1                              TTL 00:25:01
Name: server.ddns-exampleuser.com
  Address: fe80::21e:8cff:feb5:4faa              TTL 00:00:41
  Address: 10.10.10.2                            TTL 00:25:01
```

Note If the FQDN host has not been activated yet, this command shows no output.

The following is sample output from the **show dns host** command:

```
hostname# show dns host www.example.com
Name:   www.example.com
Address: 10.1.3.1 TTL 00:03:01
Address: 10.1.9.5 TTL 00:00:36
Address: 10.1.1.2 TTL 00:01:01
```

Related Commands

Command	Description
clear dns-hosts	Clears the DNS cache.
dns domain-lookup	Enables the ASA to perform a name lookup.
dns name-server	Configures a DNS server address.

show dns-hosts

To show the DNS cache, use the **show dns-hosts** command in privileged EXEC mode. The DNS cache includes dynamically learned entries from a DNS server and manually entered names and IP addresses.

show dns-hosts

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Examples

The following is sample output from the **show dns-hosts** command:

```
hostname# show dns-hosts
Host                      Flags      Age Type   Address(es)
ns2.example.com           (temp, OK) 0    IP    10.102.255.44
ns1.example.com           (temp, OK) 0    IP    192.168.241.185
snowmass.example.com      (temp, OK) 0    IP    10.94.146.101
server.example.com        (temp, OK) 0    IP    10.94.146.80
```

Related Commands

Command	Description
clear dns-hosts	Clears the DNS cache.
dns domain-lookup	Enables the ASA to perform a name lookup.
dns name-server	Configures a DNS server address.
dns retries	Specifies the number of times to retry the list of DNS servers when the ASA does not receive a response.
dns timeout	Specifies the amount of time to wait before trying the next DNS server.

Table 11 shows each field description.

Table 48-1 show dns-hosts Fields

Field	Description
Host	Shows the hostname.
Flags	Shows the entry status as a combination of the following: • temp—This entry is temporary because it comes from a DNS server. The ASA removes this entry after 72 hours of inactivity. • perm—This entry is permanent because it was added with the **name** command. • OK—This entry is valid. • ??—This entry is suspect and needs to be revalidated. • EX—This entry is expired.
Age	Shows the number of hours since this entry was last referenced.
Type	Shows the type of DNS record; this value is always IP.
Address(es)	The IP addresses.

Related Commands

Command	Description
clear dns-hosts	Clears the DNS cache.
dns domain-lookup	Enables the ASA to perform a name lookup.
dns name-server	Configures a DNS server address.
dns retries	Specifies the number of times to retry the list of DNS servers when the ASA does not receive a response.
dns timeout	Specifies the amount of time to wait before trying the next DNS server.

show dynamic-filter data

To show information about the Botnet Traffic Filter dynamic database, including when the dynamic database was last downloaded, the version of the database, how many entries the database contains, and 10 sample entries, use the **show dynamic-filter data** command in privileged EXEC mode.

show dynamic-filter data

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

To view dynamic database information, first enable use and download of the database with the **dynamic-filter use-database** and **dynamic-filter updater-client enable** commands.

Examples

The following is sample output from the **show dynamic-filter data** command:

```
hostname# show dynamic-filter data

Traffic filter is using downloaded database version '907'
Fetched at 18:00:16 UTC Jan 22 2009, size: 674381
Sample names from downloaded database:
  example.com, example.net, example.org,
cisco.example, cisco.invalid, bad.example.com
bad.example.net, bad.example.org, bad.cisco.example
bad.cisco.ivalid
Total entries in Dynamic Filter database:
  Dynamic data: 40909 domain names , 1080 IPv4 addresses
  Local data: 0 domain names , 0 IPv4 addresses
Active rules in Dynamic Filter asp table:
  Dynamic data: 0 domain names , 1080 IPv4 addresses
  Local data: 0 domain names , 0 IPv4 addresses
```

Related Commands

Command	Description
address	Adds an IP address to the blacklist or whitelist.
clear configure dynamic-filter	Clears the running Botnet Traffic Filter configuration.
clear dynamic-filter dns-snoop	Clears Botnet Traffic Filter DNS snooping data.
clear dynamic-filter reports	Clears Botnet Traffic filter report data.
clear dynamic-filter statistics	Clears Botnet Traffic filter statistics.
dns domain-lookup	Enables the ASA to send DNS requests to a DNS server to perform a name lookup for supported commands.
dns server-group	Identifies a DNS server for the ASA.
dynamic-filter ambiguous-is-black	Treats greylisted traffic as blacklisted traffic for action purposes.
dynamic-filter blacklist	Edits the Botnet Traffic Filter blacklist.
dynamic-filter database fetch	Manually retrieves the Botnet Traffic Filter dynamic database.
dynamic-filter database find	Searches the dynamic database for a domain name or IP address.
dynamic-filter database purge	Manually deletes the Botnet Traffic Filter dynamic database.
dynamic-filter drop blacklist	Automatically drops blacklisted traffic.
dynamic-filter enable	Enables the Botnet Traffic Filter for a class of traffic or for all traffic if you do not specify an access list.
dynamic-filter updater-client enable	Enables downloading of the dynamic database.
dynamic-filter use-database	Enables use of the dynamic database.
dynamic-filter whitelist	Edits the Botnet Traffic Filter whitelist.
inspect dns dynamic-filter-snoop	Enables DNS inspection with Botnet Traffic Filter snooping.
name	Adds a name to the blacklist or whitelist.
show asp table dynamic-filter	Shows the Botnet Traffic Filter rules that are installed in the accelerated security path.
show dynamic-filter data	Shows information about the dynamic database, including when the dynamic database was last downloaded, the version of the database, how many entries the database contains, and 10 sample entries.
show dynamic-filter reports	Generates reports of the top 10 botnet sites, ports, and infected hosts.
show dynamic-filter statistics	Shows how many connections were monitored with the Botnet Traffic Filter, and how many of those connections match the whitelist, blacklist, and greylist.
show dynamic-filter updater-client	Shows information about the updater server, including the server IP address, the next time the ASA will connect with the server, and the database version last installed.
show running-config dynamic-filter	Shows the Botnet Traffic Filter running configuration.

show dynamic-filter dns-snoop

To show the Botnet Traffic Filter DNS snooping summary, or the actual IP addresses and names, use the **show dynamic-filter dns-snoop** command in privileged EXEC mode.

show dynamic-filter dns-snoop [**detail**]

Syntax Description

detail	(Optional) Shows the IP addresses and names snooped from DNS responses.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

All inspected DNS data is included in this output, and not just matching names in the blacklist. DNS data from static entries are not included.

To clear the DNS snooping data, enter the **clear dynamic-filter dns-snoop** command.

Examples

The following is sample output from the **show dynamic-filter dns-snoop** command:

```
hostname# show dynamic-filter dns-snoop

DNS Reverse Cache Summary Information:
75 addresses, 124 names, 997 dnsrc address buckets
```

The following is sample output from the **show dynamic-filter dns-snoop detail** command:

```
hostname# show dynamic-filter dns-snoop detail

DNS Reverse Cache Summary Information:
75 addresses, 124 names, 997 dnsrc address buckets
DNS reverse Cache Information:
[10.67.22.34] flags=0x22, cat=2, unit=0 b:g:w=3:0:0, cookie=0xda148218
    [www3.example.com] cat=2, ttl=3
    [www.bad.example.com] cat=2, ttl=3
    [www.example.com] cat=2, ttl=3
[10.6.68.133] flags=0x2, cat=2, unit=0 b:g:w=1:0:0, cookie=0xda13ed60
    [cisco.example] cat=2, ttl=73
```

```
[10.166.226.25] flags=0x2, cat=2, unit=0 b:g:w=1:0:0, cookie=0xda608cb8
    [cisco.invalid] cat=2, ttl=2
```

Related Commands

Command	Description
address	Adds an IP address to the blacklist or whitelist.
clear configure dynamic-filter	Clears the running Botnet Traffic Filter configuration.
clear dynamic-filter dns-snoop	Clears Botnet Traffic Filter DNS snooping data.
clear dynamic-filter reports	Clears Botnet Traffic filter report data.
clear dynamic-filter statistics	Clears Botnet Traffic filter statistics.
dns domain-lookup	Enables the ASA to send DNS requests to a DNS server to perform a name lookup for supported commands.
dns server-group	Identifies a DNS server for the ASA.
dynamic-filter ambiguous-is-black	Treats greylisted traffic as blacklisted traffic for action purposes.
dynamic-filter blacklist	Edits the Botnet Traffic Filter blacklist.
dynamic-filter database fetch	Manually retrieves the Botnet Traffic Filter dynamic database.
dynamic-filter database find	Searches the dynamic database for a domain name or IP address.
dynamic-filter database purge	Manually deletes the Botnet Traffic Filter dynamic database.
dynamic-filter drop blacklist	Automatically drops blacklisted traffic.
dynamic-filter enable	Enables the Botnet Traffic Filter for a class of traffic or for all traffic if you do not specify an access list.
dynamic-filter updater-client enable	Enables downloading of the dynamic database.
dynamic-filter use-database	Enables use of the dynamic database.
dynamic-filter whitelist	Edits the Botnet Traffic Filter whitelist.
inspect dns dynamic-filter-snoop	Enables DNS inspection with Botnet Traffic Filter snooping.
name	Adds a name to the blacklist or whitelist.
show asp table dynamic-filter	Shows the Botnet Traffic Filter rules that are installed in the accelerated security path.
show dynamic-filter data	Shows information about the dynamic database, including when the dynamic database was last downloaded, the version of the database, how many entries the database contains, and 10 sample entries.
show dynamic-filter reports	Generates reports of the top 10 botnet sites, ports, and infected hosts.
show dynamic-filter statistics	Shows how many connections were monitored with the Botnet Traffic Filter, and how many of those connections match the whitelist, blacklist, and greylist.
show dynamic-filter updater-client	Shows information about the updater server, including the server IP address, the next time the ASA will connect with the server, and the database version last installed.
show running-config dynamic-filter	Shows the Botnet Traffic Filter running configuration.

show dynamic-filter reports top

To generate reports of the top 10 malware sites, ports, and infected hosts classified by the Botnet Traffic Filter, use the **show dynamic-filter reports top** command in privileged EXEC mode.

show dynamic-filter reports top [**malware-sites** | **malware-ports** | **infected-hosts**]

Syntax Description

malware-ports	(Optional) Shows a report for the top 10 malware ports.
malware-sites	(Optional) Shows a report for the top 10 malware sites.
infected-hosts	(Optional) Shows a report for the top 10 infected hosts.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.2(1)	This command was introduced.
8.2(2)	The **botnet-sites** and **botnet-ports** keywords were changed to **malware-sites** and **malware-ports**. The malware-sites report now includes the number of connections dropped, and the threat level and category of each site. A last clear timestamp was added. For threat events, the severity level was changed from a warning to a notification. Threat events can be triggered every five minutes.

Usage Guidelines

This report is a snapshot of the data, and may not match the top 10 items since the statistics started to be collected.

To clear the report data, enter the **clear dynamic-filter reports top** command.

Examples

The following is sample output from the **show dynamic-filter reports top malware-sites** command:

```
hostname# show dynamic-filter reports top malware-sites
Site                                Connections logged dropped Threat Level Category
-------------------------------------------------------------------------------------
bad1.example.com (10.67.22.34)                    11      0          2      Botnet
bad2.example.com (209.165.200.225)                 8      8          3      Virus
bad1.cisco.example(10.131.36.158)                  6      6          3      Virus
bad2.cisco.example(209.165.201.1)                  2      2          3      Trojan
```

```
horrible.example.net(10.232.224.2)                    2     2          3      Botnet
nono.example.org(209.165.202.130)                     1     1          3      Virus

Last clearing of the top sites report: at 13:41:06 UTC Jul 15 2009
```

The following is sample output from the **show dynamic-filter reports top malware-ports** command:

```
hostname# show dynamic-filter reports top malware-ports
Port                                        Connections logged
-------------------------------------------------------------------------
tcp 1000                                                  617
tcp 2001                                                  472
tcp 23                                                     22
tcp 1001                                                   19
udp 2000                                                   17
udp 2001                                                   17
tcp 8080                                                    9
tcp 80                                                      3
tcp >8192                                                   2

Last clearing of the top ports report: at 13:41:06 UTC Jul 15 2009
```

The following is sample output from the **show dynamic-filter reports top infected-hosts** command:

```
hostname# show dynamic-filter reports top infected-hosts
Host                                        Connections logged
-------------------------------------------------------------------------
10.10.10.51(inside)                                      1190
10.12.10.10(inside)                                        10
10.10.11.10(inside)                                         5

Last clearing of the top infected-hosts report: at 13:41:06 UTC Jul 15 2009
```

Related Commands

Command	Description
address	Adds an IP address to the blacklist or whitelist.
clear configure dynamic-filter	Clears the running Botnet Traffic Filter configuration.
clear dynamic-filter dns-snoop	Clears Botnet Traffic Filter DNS snooping data.
clear dynamic-filter reports	Clears Botnet Traffic filter report data.
clear dynamic-filter statistics	Clears Botnet Traffic filter statistics.
dns domain-lookup	Enables the ASA to send DNS requests to a DNS server to perform a name lookup for supported commands.
dns server-group	Identifies a DNS server for the ASA.
dynamic-filter ambiguous-is-black	Treats greylisted traffic as blacklisted traffic for action purposes.
dynamic-filter blacklist	Edits the Botnet Traffic Filter blacklist.
dynamic-filter database fetch	Manually retrieves the Botnet Traffic Filter dynamic database.
dynamic-filter database find	Searches the dynamic database for a domain name or IP address.
dynamic-filter database purge	Manually deletes the Botnet Traffic Filter dynamic database.
dynamic-filter drop blacklist	Automatically drops blacklisted traffic.
dynamic-filter enable	Enables the Botnet Traffic Filter for a class of traffic or for all traffic if you do not specify an access list.

Command	Description
dynamic-filter updater-client enable	Enables downloading of the dynamic database.
dynamic-filter use-database	Enables use of the dynamic database.
dynamic-filter whitelist	Edits the Botnet Traffic Filter whitelist.
inspect dns dynamic-filter-snoop	Enables DNS inspection with Botnet Traffic Filter snooping.
name	Adds a name to the blacklist or whitelist.
show asp table dynamic-filter	Shows the Botnet Traffic Filter rules that are installed in the accelerated security path.
show dynamic-filter data	Shows information about the dynamic database, including when the dynamic database was last downloaded, the version of the database, how many entries the database contains, and 10 sample entries.
show dynamic-filter dns-snoop	Shows the Botnet Traffic Filter DNS snooping summary, or with the **detail** keyword, the actual IP addresses and names.
show dynamic-filter statistics	Shows how many connections were monitored with the Botnet Traffic Filter, and how many of those connections match the whitelist, blacklist, and greylist.
show dynamic-filter updater-client	Shows information about the updater server, including the server IP address, the next time the ASA will connect with the server, and the database version last installed.
show running-config dynamic-filter	Shows the Botnet Traffic Filter running configuration.

show dynamic-filter reports infected-hosts

To generate reports about infected hosts classified by the Botnet Traffic Filter, use the **show dynamic-filter reports infected-hosts** command in privileged EXEC mode.

show dynamic-filter reports infected-hosts {**max-connections** | **latest-active** | **highest-threat** | **subnet** *ip_address netmask* | **all**}

Syntax Description

all	Shows all buffered infected-hosts information. This display might include thousands of entries. You might want to use ASDM to generate a PDF file instead of using the CLI.
highest-threat	Shows the 20 hosts that connected to the malware sites with the highest threat level.
latest-active	Shows the 20 hosts with the most recent activity. For each host, the display shows detailed information about 5 visited malware sites.
max-connections	Shows the 20 infected hosts with the most number of connections.
subnet *ip_address netmask*	Shows up to 20 hosts within the specified subnet.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.2(2)	This command was introduced.

Usage Guidelines

These reports contain detailed history about infected hosts, showing the correlation between infected hosts, visited malware sites, and malware ports.

To clear the report data, enter the **clear dynamic-filter reports infected-hosts** command.

Examples

The following is sample output from the **show dynamic-filter reports infected hosts all** command:

```
hostname# show dynamic-filter reports infected-hosts all

Total 2 infected-hosts in buffer
Host (interface)                      Latest malicious conn time, filter action  Conn logged, dropped
```

```
==========================================================================================================
192.168.1.4 (internal)                  15:39:40 UTC Sep 17 2009, dropped                    3      3
Malware-sites connected to (not ordered)
Site                       Latest conn port, time, filter action   Conn logged, dropped Threat-level Category
----------------------------------------------------------------------------------------------------------
10.73.210.27 (bad.example.com)     80, 15:39:31 UTC Sep 17 2009, dropped      2   2     very-high Malware
10.65.2.119 (bad2.example.com)     0, 15:39:40 UTC Sep 17 2009, dropped       1   1     very-high admin-added
==========================================================================================================
192.168.1.2 (internal)                  15:39:01 UTC Sep 17 2009, dropped                    5      5
Malware-sites connected to (not ordered)
Site                       Latest conn port, time, filter action   Conn logged, dropped Threat-level Category
----------------------------------------------------------------------------------------------------------
10.131.36.158 (bad.example.com)    0, 15:37:46 UTC Sep 17 2009, dropped      1    1    very-high admin-added
10.65.2.119 (bad2.example.com)     0, 15:37:53 UTC Sep 17 2009, dropped      1    1   very-high  admin-added
20.73.210.27 (bad3.example.com)   80, 15:39:01 UTC Sep 17 2009, dropped      3    3   very-high  Malware
==========================================================================================================

Last clearing of the infected-hosts report: Never
```

Related Commands

Command	Description
address	Adds an IP address to the blacklist or whitelist.
clear configure dynamic-filter	Clears the running Botnet Traffic Filter configuration.
clear dynamic-filter dns-snoop	Clears Botnet Traffic Filter DNS snooping data.
clear dynamic-filter reports	Clears Botnet Traffic filter report data.
clear dynamic-filter statistics	Clears Botnet Traffic filter statistics.
dns domain-lookup	Enables the ASA to send DNS requests to a DNS server to perform a name lookup for supported commands.
dns server-group	Identifies a DNS server for the ASA.
dynamic-filter ambiguous-is-black	Treats greylisted traffic as blacklisted traffic for action purposes.
dynamic-filter blacklist	Edits the Botnet Traffic Filter blacklist.
dynamic-filter database fetch	Manually retrieves the Botnet Traffic Filter dynamic database.
dynamic-filter database find	Searches the dynamic database for a domain name or IP address.
dynamic-filter database purge	Manually deletes the Botnet Traffic Filter dynamic database.
dynamic-filter drop blacklist	Automatically drops blacklisted traffic.
dynamic-filter enable	Enables the Botnet Traffic Filter for a class of traffic or for all traffic if you do not specify an access list.
dynamic-filter updater-client enable	Enables downloading of the dynamic database.
dynamic-filter use-database	Enables use of the dynamic database.
dynamic-filter whitelist	Edits the Botnet Traffic Filter whitelist.
inspect dns dynamic-filter-snoop	Enables DNS inspection with Botnet Traffic Filter snooping.
name	Adds a name to the blacklist or whitelist.
show asp table dynamic-filter	Shows the Botnet Traffic Filter rules that are installed in the accelerated security path.

Command	Description
show dynamic-filter data	Shows information about the dynamic database, including when the dynamic database was last downloaded, the version of the database, how many entries the database contains, and 10 sample entries.
show dynamic-filter dns-snoop	Shows the Botnet Traffic Filter DNS snooping summary, or with the **detail** keyword, the actual IP addresses and names.
show dynamic-filter statistics	Shows how many connections were monitored with the Botnet Traffic Filter, and how many of those connections match the whitelist, blacklist, and greylist.
show dynamic-filter updater-client	Shows information about the updater server, including the server IP address, the next time the ASA will connect with the server, and the database version last installed.
show running-config dynamic-filter	Shows the Botnet Traffic Filter running configuration.

show dynamic-filter statistics

To show how many connections were classified as whitelist, blacklist, and greylist connections using the Botnet Traffic Filter, use the **show dynamic-filter statistics** command in privileged EXEC mode.

show dynamic-filter statistics [**interface** *name*] [**detail**]

Syntax Description

detail	(Optional) Shows how many packets at each threat level were classified or dropped.
interface *name*	(Optional) Shows statistics for a particular interface.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.2(1)	This command was introduced.
8.2(2)	The **detail** keyword was added to show how many packets at each threat level were classified or dropped. For threat events, the severity level was changed from a warning to a notification. Threat events can be triggered every five minutes.

Usage Guidelines

The greylist includes addresses that are associated with multiple domain names, but not all of these domain names are on the blacklist.

To clear the statistics, enter the **clear dynamic-filter statistics** command.

Examples

The following is sample output from the **show dynamic-filter statistics** command:

```
hostname# show dynamic-filter statistics
Enabled on interface outside
 Total conns classified 11, ingress 11, egress 0
 Total whitelist classified 0, ingress 0, egress 0
 Total greylist classified 0, dropped 0, ingress 0, egress 0
 Total blacklist classified 11, dropped 5, ingress 11, egress 0
Enabled on interface inside
 Total conns classified 1182, ingress 1182, egress 0
 Total whitelist classified 3, ingress 3, egress 0
 Total greylist classified 0, dropped 0, ingress 0, egress 0
```

```
 Total blacklist classified 1179, dropped 1000, ingress 1179, egress 0
```

The following is sample output from the **show dynamic-filter statistics interface outside detail** command:

```
hostname# show dynamic-filter statistics interface outside detail
Enabled on interface outside
 Total conns classified 2108, ingress 2108, egress 0
 Total whitelist classified 0, ingress 0, egress 0
 Total greylist classified 1, dropped 1, ingress 0, egress 0
   Threat level 5 classified 1, dropped 1, ingress 0, egress 0
   Threat level 4 classified 0, dropped 0, ingress 0, egress 0
   ...
Total blacklist classified 30, dropped 20, ingress 11, egress 2
   Threat level 5 classified 6, dropped 6, ingress 4, egress 2
   Threat level 4 classified 5, dropped 5, ingress 5, egress 0
```

Related Commands

Command	Description
address	Adds an IP address to the blacklist or whitelist.
clear configure dynamic-filter	Clears the running Botnet Traffic Filter configuration.
clear dynamic-filter dns-snoop	Clears Botnet Traffic Filter DNS snooping data.
clear dynamic-filter reports	Clears Botnet Traffic filter report data.
clear dynamic-filter statistics	Clears Botnet Traffic filter statistics.
dns domain-lookup	Enables the ASA to send DNS requests to a DNS server to perform a name lookup for supported commands.
dns server-group	Identifies a DNS server for the ASA.
dynamic-filter ambiguous-is-black	Treats greylisted traffic as blacklisted traffic for action purposes.
dynamic-filter blacklist	Edits the Botnet Traffic Filter blacklist.
dynamic-filter database fetch	Manually retrieves the Botnet Traffic Filter dynamic database.
dynamic-filter database find	Searches the dynamic database for a domain name or IP address.
dynamic-filter database purge	Manually deletes the Botnet Traffic Filter dynamic database.
dynamic-filter drop blacklist	Automatically drops blacklisted traffic.
dynamic-filter enable	Enables the Botnet Traffic Filter for a class of traffic or for all traffic if you do not specify an access list.
dynamic-filter updater-client enable	Enables downloading of the dynamic database.
dynamic-filter use-database	Enables use of the dynamic database.
dynamic-filter whitelist	Edits the Botnet Traffic Filter whitelist.
inspect dns dynamic-filter-snoop	Enables DNS inspection with Botnet Traffic Filter snooping.
name	Adds a name to the blacklist or whitelist.
show asp table dynamic-filter	Shows the Botnet Traffic Filter rules that are installed in the accelerated security path.

Command	Description
show dynamic-filter data	Shows information about the dynamic database, including when the dynamic database was last downloaded, the version of the database, how many entries the database contains, and 10 sample entries.
show dynamic-filter dns-snoop	Shows the Botnet Traffic Filter DNS snooping summary, or with the **detail** keyword, the actual IP addresses and names.
show dynamic-filter reports	Generates reports of the top 10 botnet sites, ports, and infected hosts.
show dynamic-filter updater-client	Shows information about the updater server, including the server IP address, the next time the ASA will connect with the server, and the database version last installed.
show running-config dynamic-filter	Shows the Botnet Traffic Filter running configuration.

show dynamic-filter updater-client

To show information about the Botnet Traffic Filter updater server, including the server IP address, the next time the ASA will connect with the server, and the database version last installed, use the **show dynamic-filter updater-client** command in privileged EXEC mode.

show dynamic-filter updater-client

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
8.2(1)	This command was introduced.

Examples

The following is sample output from the **show dynamic-filter updater-client** command:

```
hostname# show dynamic-filter updater-client

Traffic Filter updater client is enabled
Updater server url is https://10.15.80.240:446
Application name: trafmon, version: 1.0
Encrypted UDI:
0bb93985f42d941e50dc8f022350d1a8de96ba6c1f6d45f4bc0ead02a7d5990be32f483b
5715cd80a215cedadd4e5ffe
Next update is in 00:02:00
Database file version is '907' fetched at 22:51:41 UTC Oct 16 2006,
size: 521408
```

Related Commands

Command	Description
address	Adds an IP address to the blacklist or whitelist.
clear configure dynamic-filter	Clears the running Botnet Traffic Filter configuration.
clear dynamic-filter dns-snoop	Clears Botnet Traffic Filter DNS snooping data.
clear dynamic-filter reports	Clears Botnet Traffic filter report data.
clear dynamic-filter statistics	Clears Botnet Traffic filter statistics.

Command	Description
dns domain-lookup	Enables the ASA to send DNS requests to a DNS server to perform a name lookup for supported commands.
dns server-group	Identifies a DNS server for the ASA.
dynamic-filter ambiguous-is-black	Treats greylisted traffic as blacklisted traffic for action purposes.
dynamic-filter blacklist	Edits the Botnet Traffic Filter blacklist.
dynamic-filter database fetch	Manually retrieves the Botnet Traffic Filter dynamic database.
dynamic-filter database find	Searches the dynamic database for a domain name or IP address.
dynamic-filter database purge	Manually deletes the Botnet Traffic Filter dynamic database.
dynamic-filter drop blacklist	Automatically drops blacklisted traffic.
dynamic-filter enable	Enables the Botnet Traffic Filter for a class of traffic or for all traffic if you do not specify an access list.
dynamic-filter updater-client enable	Enables downloading of the dynamic database.
dynamic-filter use-database	Enables use of the dynamic database.
dynamic-filter whitelist	Edits the Botnet Traffic Filter whitelist.
inspect dns dynamic-filter-snoop	Enables DNS inspection with Botnet Traffic Filter snooping.
name	Adds a name to the blacklist or whitelist.
show asp table dynamic-filter	Shows the Botnet Traffic Filter rules that are installed in the accelerated security path.
show dynamic-filter data	Shows information about the dynamic database, including when the dynamic database was last downloaded, the version of the database, how many entries the database contains, and 10 sample entries.
show dynamic-filter dns-snoop	Shows the Botnet Traffic Filter DNS snooping summary, or with the **detail** keyword, the actual IP addresses and names.
show dynamic-filter reports	Generates reports of the top 10 botnet sites, ports, and infected hosts.
show dynamic-filter statistics	Shows how many connections were monitored with the Botnet Traffic Filter, and how many of those connections match the whitelist, blacklist, and greylist.
show running-config dynamic-filter	Shows the Botnet Traffic Filter running configuration.

show eigrp events

To display the EIGRP event log, use the **show eigrp events** command in privileged EXEC mode.

show eigrp [*as-number*] **events** [{*start end*} | **type**]

Syntax Description

as-number	(Optional) Specifies the autonomous system number of the EIGRP process for which you are viewing the event log. Because the ASA only supports one EIGRP routing process, you do not need to specify the autonomous system number.
end	(Optional) Limits the output to the entries with starting with the *start* index number and ending with the *end* index number.
start	(Optional) A number specifying the log entry index number. Specifying a start number causes the output to start with the specified event and end with the event specified by the *end* argument. Valid values are from 1 to 4294967295.
type	(Optional) Displays the events that are being logged.

Defaults

If a *start* and *end* is not specified, all log entries are shown.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

The **show eigrp events** output displays up to 500 events. Once the maximum number of events has been reached, new events are added to the bottom of the output and old events are removed from the top of the output.

You can use the **clear eigrp events** command to clear the EIGRP event log.

The **show eigrp events type** command displays the logging status of EIGRP events. By default, neighbor changes, neighbor warning, and DUAL FSM messages are logged. You can disable neighbor change event logging using the **no eigrp log-neighbor-changes** command. You can disable neighbor warning event logging using the **no eigrp log-neighbor-warnings** command. You cannot disable the logging of DUAL FSM events.

Examples

The following is sample output from the **show eigrp events** command:

```
hostname# show eigrp events

Event information for AS 100:
1    12:11:23.500 Change queue emptied, entries: 4
2    12:11:23.500 Metric set: 10.1.0.0/16 53760
3    12:11:23.500 Update reason, delay: new if 4294967295
4    12:11:23.500 Update sent, RD: 10.1.0.0/16 4294967295
5    12:11:23.500 Update reason, delay: metric chg 4294967295
6    12:11:23.500 Update sent, RD: 10.1.0.0/16 4294967295
7    12:11:23.500 Route install: 10.1.0.0/16 10.130.60.248
8    12:11:23.500 Find FS: 10.1.0.0/16 4294967295
9    12:11:23.500 Rcv update met/succmet: 53760 28160
10   12:11:23.500 Rcv update dest/nh: 10.1.0.0/16 10.130.60.248
11   12:11:23.500 Metric set: 10.1.0.0/16 4294967295
```

The following is sample output from the **show eigrp events** command with a start and stop number defined:

```
hostname# show eigrp events 3 8

Event information for AS 100:
3    12:11:23.500 Update reason, delay: new if 4294967295
4    12:11:23.500 Update sent, RD: 10.1.0.0/16 4294967295
5    12:11:23.500 Update reason, delay: metric chg 4294967295
6    12:11:23.500 Update sent, RD: 10.1.0.0/16 4294967295
7    12:11:23.500 Route install: 10.1.0.0/16 10.130.60.248
8    12:11:23.500 Find FS: 10.1.0.0/16 4294967295
```

The following is sample output from the **show eigrp events** command when there are no entries in the EIGRP event log:

```
hostname# show eigrp events

Event information for AS 100:  Event log is empty.
```

The following is sample output from the **show eigrp events type** command:

```
hostname# show eigrp events type

EIGRP-IPv4 Event Logging for AS 100:
      Log Size          500
      Neighbor Changes  Enable
      Neighbor Warnings Enable
      Dual FSM          Enable
```

Related Commands

Command	Description
clear eigrp events	Clears the EIGRP event logging buffer.
eigrp log-neighbor-changes	Enables the logging of neighbor change events.
eigrp log-neighbor-warnings	Enables the logging of neighbor warning events.

show eigrp interfaces

To display the interfaces participating in EIGRP routing, use the **show eigrp interfaces** command in privileged EXEC mode.

show eigrp [*as-number*] **interfaces** [*if-name*] [**detail**]

Syntax Description

as-number	(Optional) Specifies the autonomous system number of the EIGRP process for which you are displaying active interfaces. Because the ASA only supports one EIGRP routing process, you do not need to specify the autonomous system number.
detail	(Optional) Displays detail information.
if-name	(Optional) The name of an interface as specified by the **nameif** command. Specifying an interface name limits the display to the specified interface.

Defaults

If you do not specify an interface name, information for all EIGRP interfaces is displayed.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

Use the **show eigrp interfaces** command to determine on which interfaces EIGRP is active, and to learn information about EIGRP relating to those interfaces.

If an interface is specified, only that interface is displayed. Otherwise, all interfaces on which EIGRP is running are displayed.

If an autonomous system is specified, only the routing process for the specified autonomous system is displayed. Otherwise, all EIGRP processes are displayed.

Examples

The following is sample output from the **show eigrp interfaces** command:

```
hostname# show eigrp interfaces

EIGRP-IPv4 interfaces for process 100
```

```
                    Xmit Queue     Mean   Pacing Time   Multicast   Pending
Interface    Peers  Un/Reliable    SRTT   Un/Reliable   Flow Timer  Routes
mgmt             0        0/0       0      11/434          0          0
outside          1        0/0     337       0/10           0          0
inside           1        0/0      10       1/63         103          0
```

Table 48-2 describes the significant fields shown in the display.

Table 48-2 show eigrp interfaces Field Descriptions

Field	Description
process	Autonomous system number for the EIGRP routing process.
Peers	Number of directly-connected peers.
Xmit Queue Un/Reliable	Number of packets remaining in the Unreliable and Reliable transmit queues.
Mean SRTT	Mean smooth round-trip time interval (in seconds).
Pacing Time Un/Reliable	Pacing time (in seconds) used to determine when EIGRP packets should be sent out the interface (unreliable and reliable packets).
Multicast Flow Timer	Maximum number of seconds in which the ASA will send multicast EIGRP packets.
Pending Routes	Number of routes in the packets in the transmit queue waiting to be sent.

Related Commands

Command	Description
network	Defines the networks and interfaces that participate in the EIGRP routing process.

show eigrp neighbors

To display the EIGRP neighbor table, use the **show eigrp neighbors** command in privileged EXEC mode.

show eigrp [*as-number*] **neighbors** [**detail** | **static**] [*if-name*]

Syntax Description

as-number	(Optional) Specifies the autonomous system number of the EIGRP process for which you are deleting neighbor entries. Because the ASA only supports one EIGRP routing process, you do not need to specify the autonomous system number.
detail	(Optional) Displays detail neighbor information.
if-name	(Optional) The name of an interface as specified by the **nameif** command. Specifying an interface name displays all neighbor table entries that were learned through that interface.
static	(Optional) Displays EIGRP neighbors that are statically defined using the **neighbor** command.

Defaults

If you do not specify an interface name, the neighbors learned through all interfaces are displayed.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

You can use the **clear eigrp neighbors** command to clear the dynamically learned neighbors from the EIGRP neighbor table.

Static neighbors are not included in the output unless you use the **static** keyword.

Examples

The following is sample output from the **show eigrp neighbors** command:

```
hostname# show eigrp neighbors

EIGRP-IPv4 Neighbors for process 100
Address                 Interface     Holdtime Uptime   Q      Seq  SRTT  RTO
```

```
                                   (secs)    (h:m:s)  Count  Num  (ms)  (ms)
172.16.81.28          Ethernet1    13        0:00:41  0      11   4     20
172.16.80.28          Ethernet0    14        0:02:01  0      10   12    24
172.16.80.31          Ethernet0    12        0:02:02  0      4    5     20
```

Table 48-2 describes the significant fields shown in the display.

Table 48-3 show eigrp neighbors Field Descriptions

Field	Description
process	Autonomous system number for the EIGRP routing process.
Address	IP address of the EIGRP neighbor.
Interface	Interface on which the ASA receives hello packets from the neighbor.
Holdtime	Length of time (in seconds) that the ASA waits to hear from the neighbor before declaring it down. This hold time is received from the neighbor in the hello packet, and begins decreasing until another hello packet is received from the neighbor. If the neighbor is using the default hold time, this number will be less than 15. If the peer configures a non-default hold time, the non-default hold time will be displayed. If this value reaches 0, the ASA considers the neighbor unreachable.
Uptime	Elapsed time (in hours:minutes: seconds) since the ASA first heard from this neighbor.
Q Count	Number of EIGRP packets (update, query, and reply) that the ASA is waiting to send.
Seq Num	Sequence number of the last update, query, or reply packet that was received from the neighbor.
SRTT	Smooth round-trip time. This is the number of milliseconds required for an EIGRP packet to be sent to this neighbor and for the ASA to receive an acknowledgment of that packet.
RTO	Retransmission timeout (in milliseconds). This is the amount of time the ASA waits before resending a packet from the retransmission queue to a neighbor.

The following is sample output from the **show eigrp neighbors static** command:

```
hostname# show eigrp neighbors static

EIGRP-IPv4 neighbors for process 100
Static Address                Interface
192.168.1.5                   management
```

Table 48-4 describes the significant fields shown in the display.

Table 48-4 show ip eigrp neighbors static Field Descriptions

Field	Description
process	Autonomous system number for the EIGRP routing process.
Static Address	IP address of the EIGRP neighbor.
Interface	Interface on which the ASA receives hello packets from the neighbor.

The following is sample output from the **show eigrp neighbors detail** command:

```
hostname# show eigrp neighbors detail

EIGRP-IPv4 neighbors for process 100
H   Address                 Interface       Hold Uptime   SRTT   RTO  Q Seq Tye
                                            (sec)         (ms)       Cnt Num
3   1.1.1.3                 Et0/0             12 00:04:48 1832  5000  0  14
   Version 12.2/1.2, Retrans: 0, Retries: 0
   Restart time 00:01:05
0   10.4.9.5                Fa0/0             11 00:04:07  768  4608  0  4   S
   Version 12.2/1.2, Retrans: 0, Retries: 0
2   10.4.9.10               Fa0/0             13 1w0d        1  3000  0  6   S
   Version 12.2/1.2, Retrans: 1, Retries: 0
1   10.4.9.6                Fa0/0             12 1w0d        1  3000  0  4   S
   Version 12.2/1.2, Retrans: 1, Retries: 0
```

Table 48-5 describes the significant fields shown in the display.

Table 48-5 show ip eigrp neighbors details Field Descriptions

Field	Description
process	Autonomous system number for the EIGRP routing process.
H	This column lists the order in which a peering session was established with the specified neighbor. The order is specified with sequential numbering starting with 0.
Address	IP address of the EIGRP neighbor.
Interface	Interface on which the ASA receives hello packets from the neighbor.
Holdtime	Length of time (in seconds) that the ASA waits to hear from the neighbor before declaring it down. This hold time is received from the neighbor in the hello packet, and begins decreasing until another hello packet is received from the neighbor. If the neighbor is using the default hold time, this number will be less than 15. If the peer configures a non-default hold time, the non-default hold time will be displayed. If this value reaches 0, the ASA considers the neighbor unreachable.
Uptime	Elapsed time (in hours:minutes: seconds) since the ASA first heard from this neighbor.
SRTT	Smooth round-trip time. This is the number of milliseconds required for an EIGRP packet to be sent to this neighbor and for the ASA to receive an acknowledgment of that packet.
RTO	Retransmission timeout (in milliseconds). This is the amount of time the ASA waits before resending a packet from the retransmission queue to a neighbor.
Q Count	Number of EIGRP packets (update, query, and reply) that the ASA is waiting to send.
Seq Num	Sequence number of the last update, query, or reply packet that was received from the neighbor.
Version	The software version that the specified peer is running.
Retrans	The number of times that a packet has been retransmitted.

Table 48-5 show ip eigrp neighbors details Field Descriptions

Field	Description
Retries	The number of times an attempt was made to retransmit a packet.
Restart time	Elapsed time (in hours:minutes:seconds) since the specified neighbor has restarted.

Related Commands

Command	Description
clear eigrp neighbors	Clears the EIGRP neighbor table.
debug eigrp neighbors	Displays EIGRP neighbor debugging messages.
debug ip eigrp	Displays EIGRP packet debugging messages.

show eigrp topology

To display the EIGRP topology table, use the **show eigrp topology** command in privileged EXEC mode.

show eigrp [*as-number*] **topology** [*ip-addr* [*mask*] | **active** | **all-links** | **pending** | **summary** | **zero-successors**]

Syntax Description

active	(Optional) Displays only active entries in the EIGRP topology table.
all-links	(Optional) Displays all routes in the EIGRP topology table, even those that are not feasible successors.
as-number	(Optional) Specifies the autonomous system number of the EIGRP process. Because the ASA only supports one EIGRP routing process, you do not need to specify the autonomous system number.
ip-addr	(Optional) Defines the IP address from the topology table to display. When specified with a mask, a detailed description of the entry is provided.
mask	(Optional) Defines the network mask to apply to the *ip-addr* argument.
pending	(Optional) Displays all entries in the EIGRP topology table that are waiting for an update from a neighbor or are waiting to reply to a neighbor.
summary	(Optional) Displays a summary of the EIGRP topology table.
zero-successors	(Optional) Displays available routes in the EIGRP topology table.

Defaults

Only routes that are feasible successors are displayed. Use the **all-links** keyword to display all routes, including those that are not feasible successors.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

You can use the **clear eigrp topology** command to remove the dynamic entries from the topology table.

Examples

The following is sample output from the **show eigrp topology** command:

Command Historyho

```
EIGRP-IPv4 Topology Table for AS(100)/ID(192.168.1.1)

Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply,
       r - Reply status

P 10.2.1.0 255.255.255.0, 2 successors, FD is 0
          via 10.16.80.28 (46251776/46226176), Ethernet0
          via 10.16.81.28 (46251776/46226176), Ethernet1
P 10.2.1.0 255.255.255.0, 1 successors, FD is 307200
          via Connected, Ethernet1
          via 10.16.81.28 (307200/281600), Ethernet1
          via 10.16.80.28 (307200/281600), Ethernet0
```

Table 48-6 describes the significant fields shown in the displays.

Table 48-6 show eigrp topology Field Information

Field	Description
Codes	State of this topology table entry. Passive and Active refer to the EIGRP state with respect to this destination; Update, Query, and Reply refer to the type of packet that is being sent.
P - Passive	The route is known to be good and no EIGRP computations are being performed for this destination.
A - Active	EIGRP computations are being performed for this destination.
U - Update	Indicates that an update packet was sent to this destination.
Q - Query	Indicates that a query packet was sent to this destination.
R - Reply	Indicates that a reply packet was sent to this destination.
r - Reply status	Flag that is set after the software has sent a query and is waiting for a reply.
address mask	Destination IP address and mask.
successors	Number of successors. This number corresponds to the number of next hops in the IP routing table. If “successors” is capitalized, then the route or next hop is in a transition state.
FD	Feasible distance. The feasible distance is the best metric to reach the destination or the best metric that was known when the route went active. This value is used in the feasibility condition check. If the reported distance of the router (the metric after the slash) is less than the feasible distance, the feasibility condition is met and that path is a feasible successor. Once the software determines it has a feasible successor, it need not send a query for that destination.
via	IP address of the peer that told the software about this destination. The first *n* of these entries, where *n* is the number of successors, is the current successors. The remaining entries on the list are feasible successors.
(*cost*/*adv_cost*)	The first number is the EIGRP metric that represents the cost to the destination. The second number is the EIGRP metric that this peer advertised.
interface	The interface from which the information was learned.

The following is sample output from the **show eigrp topology** used with an IP address. The output shown is for an internal route.

```
hostname# show eigrp topology 10.2.1.0 255.255.255.0

EIGRP-IPv4 (AS 100): Topology Default-IP-Routing-Table(0) entry for entry for 10.2.1.0
255.255.255.0

    State is Passive, Query origin flag is 1, 1 Successor(s), FD is 281600
    Routing Descriptor Blocks:
        0.0.0.0 (Ethernet0/0), from Connected, Send flag is 0x0
            Composite metric is (281600/0), Route is Internal
            Vector metric:
                Minimum bandwidth is 10000 Kbit
                Total delay is 1000 microseconds
                Reliability is 255/255
                Load is 1/255
                Minimum MTU is 1500
                Hop count is 0
```

The following is sample output from the **show eigrp topology** used with an IP address. The output shown is for an external route.

```
hostname# show eigrp topology 10.4.80.0 255.255.255.0


EIGRP-IPv4 (AS 100): Topology Default-IP-Routing-Table(0) entry for entry for 10.4.80.0
255.255.255.0

    State is Passive, Query origin flag is 1, 1 Successor(s), FD is 409600
    Routing Descriptor Blocks:
        10.2.1.1 (Ethernet0/0), from 10.2.1.1, Send flag is 0x0
            Composite metric is (409600/128256), Route is External
            Vector metric:
                Minimum bandwidth is 10000 Kbit
                Total delay is 6000 microseconds
                Reliability is 255/255
                Load is 1/255
                Minimum MTU is 1500
                Hop count is 1
            External data:
                Originating router is 10.89.245.1
                AS number of route is 0
                External protocol is Connected, external metric is 0
                Administrator tag is 0 (0x00000000)
```

Related Commands

Command	Description
clear eigrp topology	Clears the dynamically discovered entries from the EIGRP topology table.

show eigrp traffic

To display the number of EIGRP packets sent and received, use the **show eigrp traffic** command in privileged EXEC mode.

show eigrp [*as-number*] **traffic**

Syntax Description

as-number	(Optional) Specifies the autonomous system number of the EIGRP process for which you are viewing the event log. Because the ASA only supports one EIGRP routing process, you do not need to specify the autonomous system number.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

You can use the **clear eigrp traffic** command to clear the EIGRP traffic statistics.

Examples

The following is sample output from the **show eigrp traffic** command:

```
hostname# show eigrp traffic

EIGRP-IPv4 Traffic Statistics for AS 100
  Hellos sent/received: 218/205
  Updates sent/received: 7/23
  Queries sent/received: 2/0
  Replies sent/received: 0/2
  Acks sent/received: 21/14
  Input queue high water mark 0, 0 drops
  SIA-Queries sent/received: 0/0
  SIA-Replies sent/received: 0/0
  Hello Process ID: 1719439416
  PDM Process ID: 1719439824
```

Table 48-4 describes the significant fields shown in the display.

Table 48-7 show eigrp traffic Field Descriptions

Field	Description
process	Autonomous system number for the EIGRP routing process.
Hellos sent/received	Number of hello packets sent and received.
Updates sent/received	Number of update packets sent and received.
Queries sent/received	Number of query packets sent and received.
Replies sent/received	Number of reply packets sent and received.
Acks sent/received	Number of acknowledgment packets sent and received.
Input queue high water mark/drops	Number of received packets that are approaching the maximum receive threshold and number of dropped packets.
SIA-Queries sent/received	Stuck-in-active queries sent and received.
SIA-Replies sent/received	Stuck-in-active replies sent and received.

Related Commands

Command	Description
debug eigrp packets	Displays debugging information for EIGRP packets sent and received.
debug eigrp transmit	Displays debugging information for EIGRP messages sent.

show environment

To display system environment information for system components, use the **show environment** command in privileged EXEC mode.

show environment [**driver** | **fans** | **power-supply** | **temperature**] [**chassis** | **cpu** | **voltage**]

Syntax Description

chassis	(Optional) Limits the temperature display to the chassis.
cpu	(Optional) Limits the temperature display to the processors. The ASA 5580-40 displays information for 4 processors. The ASA 5580-20 displays information for 2 processors.
driver	(Optional) Displays the environment monitoring (IPMI) driver status. The driver status can be one of the following: • RUNNING—The driver is operational. • STOPPED—An error has caused the driver to stop.
fans	(Optional) Displays the operational status of the cooling fans. The status is one of the following: • OK—The fan is operating normally. • Failed—The fan has failed and should be replaced.
power-supply	(Optional) Displays the operational status of the power supplies. The status for each power supply is one of the following: • OK—The power supply is operating normally. • Failed—The power supply has failed and should be replaced. • Not Present—The specified power supply is not installed. The power supply redundancy status also displays. The redundancy status is one of the following: • OK—The unit is operating normally with full resources. • Lost—The unit has lost redundancy but is operating normally with minimum resources. Any further failures will result in a system shutdown. • N/A—The unit is not configured for power supply redundancy.
temperature	(Optional) Displays the temperature and status of the processors and chassis. The temperature is given in celsius. The status is one of the following: • OK—The temperature is within normal operating range. • Critical—The temperature is outside of normal operating range. Operating ranges are categorized as follows: • Less than 70 degrees—OK • 70-80—Warm • 80-90—Critical • Greater than 90—Unrecoverable
voltage	(Optional) Displays the values for CPU voltage channels 1-24. Excludes the operational status.

Defaults

All operational information, except for the driver, is displayed if no keywords are specified.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
8.1(1)	This command was introduced.
8.4(2)	The output for an ASA 5585-X SSP was added. In addition, support for a dual SSP installation was added.
8.4.4(1)	Displayed power supply temperature values for the ASA 5515-X, ASA 5525-X, 5545-X, and ASA 5555-X have been changed in the output.
8.6(1)	The output for CPU voltage regulator thermal events in the ASA 5545-X and ASA 5555-X was added. The output for power supply input status was added. The output for voltage sensors was added.

Usage Guidelines

You can display operating environment information on the ASA 5545-X, 5555-X, 5580 and 5585-X. This information includes the operational status of the fans and power supplies, and temperature and status of the CPUs and chassis. The ASA 5580-40 displays information for 4 CPUs; the ASA 5580-20 displays information for 2 CPUs.

Note For a dual SSP installation, only the sensors for the chassis master show output for the cooling fans and power supplies.

Examples

The following is sample generic output from the **show environment** command:

```
hostname# show environment

Cooling Fans:
-----------------------------------
   Power Supplies:
   --------------------------------
   Left Slot (PS0): 6900 RPM - OK  (Power Supply Fan)
   Right Slot (PS1): 7000 RPM - OK  (Power Supply Fan) Power Supplies:
-----------------------------------
   Power Supply Unit Redundancy: OK
   Temperature:
   --------------------------------
   Left Slot (PS0): 26 C - OK  (Power Supply Temperature)
   Right Slot (PS1): 27 C - OK  (Power Supply Temperature)
   Cooling Fans:
   --------------------------------
   Left Slot (PS0): 6900 RPM - OK  (Power Supply Fan)
```

```
   Right Slot (PS1): 7000 RPM - OK  (Power Supply Fan)
Temperature:
---------------------------------
   Processors:
   -------------------------------
   Processor 1: 44.0 C - OK  (CPU1 Core Temperature)
   Processor 2: 45.0 C - OK  (CPU2 Core Temperature)
   Chassis:
   -------------------------------
   Ambient 1: 28.0 C - OK  (Chassis Front Temperature)
   Ambient 2: 40.5 C - OK  (Chassis Back Temperature)
   Ambient 3: 28.0 C - OK  (CPU1 Front Temperature)
   Ambient 4: 36.50 C - OK  (CPU1 Back Temperature)
   Ambient 5: 34.50 C - OK  (CPU2 Front Temperature)
   Ambient 6: 43.25 C - OK  (CPU2 Back Temperature)
   Power Supplies:
   -------------------------------
   Left Slot (PS0): 26 C - OK  (Power Supply Temperature)
   Right Slot (PS1): 27 C - OK  (Power Supply Temperature)
```

The following is sample output from the **show environment driver** command:

```
hostname# show environment driver

Cooling Fans:
---------------------------------

   Chassis Fans:
   -------------------------------
   Cooling Fan 1: 5888 RPM - OK
   Cooling Fan 2: 5632 RPM - OK
   Cooling Fan 3: 5888 RPM - OK

   Power Supplies:
   -------------------------------
   Left Slot (PS0): N/A
   Right Slot (PS1): 8448 RPM - OK

Power Supplies:
---------------------------------

   Left Slot (PS0): Not Present
   Right Slot (PS1): Present

   Left Slot (PS0): N/A
   Right Slot (PS1): 33 C - OK

   Left Slot (PS0): N/A
   Right Slot (PS1): 8448 RPM - OK

Temperature:
---------------------------------

   Processors:
   -------------------------------
   Processor 1: 70.0 C - OK

   Chassis:
   -------------------------------
   Ambient 1: 36.0 C - OK  (Chassis Back Temperature)
   Ambient 2: 31.0 C - OK  (Chassis Front Temperature)
   Ambient 3: 39.0 C - OK  (Chassis Back Left Temperature)

   Power Supplies:
```

```
   --------------------------------
   Left Slot (PS0): N/A
   Right Slot (PS1): 33 C - OK

Voltage:
-----------------------------------
   Channel 1:  1.168 V -  (CPU Core 0.46V-1.4V)
   Channel 2: 11.954 V -  (12V)
   Channel 3:  4.998 V -  (5V)
   Channel 4:  3.296 V -  (3.3V)
   Channel 5:  1.496 V -  (DDR3 1.5V)
   Channel 6:  1.048 V -  (PCH 1.5V)
```

The following is sample output from the **show environment** command for an ASA 5555-X:

```
hostname# show environment

Cooling Fans:
-----------------------------------

   Chassis Fans:
   --------------------------------

   Power Supplies:
   --------------------------------
   Left Slot (PS0): 9728 RPM - OK
   Right Slot (PS1): 0 RPM - OK

Power Supplies:
 -----------------------------------

    Left Slot (PS0): Present
    Right Slot (PS1): Present

    Power Input:
    --------------------------------
    Left Slot (PS0): OK
    Right Slot (PS1): Failure Detected

    Temperature:
    --------------------------------
    Left Slot (PS0): 29 C - OK
    Right Slot (PS1): N/A

   Processors:
   --------------------------------
   Processor 1: 81.0 C - OK

   Chassis:
   --------------------------------
   Ambient 1: 39.0 C - OK  (Chassis Back Temperature)
   Ambient 2: 32.0 C - OK  (Chassis Front Temperature)
   Ambient 3: 47.0 C - OK  (Chassis Back Left Temperature)

   Power Supplies:
   --------------------------------
   Left Slot (PS0): 33 C - OK
   Right Slot (PS1): -128 C - OK
```

The following is sample output from the **show environment** command for an ASA 5585-X chassis master in a dual SSP installation:

```
hostname(config)# show environment
```

```
Cooling Fans:
-----------------------------------

   Power Supplies:
   --------------------------------
   Left Slot (PS0): 7000 RPM - OK  (Fan Module Fan)
   Right Slot (PS1): 6900 RPM - OK  (Power Supply Fan)

Power Supplies:
-----------------------------------
   Power Supply Unit Redundancy: N/A

   Power Supplies:
   --------------------------------
   Left Slot (PS0): 64 C - OK  (Fan Module Temperature)
   Right Slot (PS1): 64 C - OK  (Power Supply Temperature)

   Power Supplies:
   --------------------------------
   Left Slot (PS0): 7000 RPM - OK  (Fan Module Fan)
   Right Slot (PS1): 6900 RPM - OK  (Power Supply Fan)

Temperature:
-----------------------------------

   Processors:
   --------------------------------
   Processor 1: 48.0 C - OK  (CPU1 Core Temperature)
   Processor 2: 47.0 C - OK  (CPU2 Core Temperature)

   Chassis:
   --------------------------------
   Ambient 1: 25.5 C - OK  (Chassis Front Temperature)
   Ambient 2: 37.5 C - OK  (Chassis Back Temperature)
   Ambient 3: 31.50 C - OK  (CPU1 Back Temperature)
   Ambient 4: 27.75 C - OK  (CPU1 Front Temperature)
   Ambient 5: 38.25 C - OK  (CPU2 Back Temperature)
   Ambient 6: 34.0 C - OK  (CPU2 Front Temperature)

   Power Supplies:
   --------------------------------
   Left Slot (PS0): 64 C - OK  (Fan Module Temperature)
   Right Slot (PS1): 64 C - OK  (Power Supply Temperature)

Voltage:
-----------------------------------
   Channel 1:  3.310 V -  (3.3V (U142 VX1))
   Channel 2:  1.492 V -  (1.5V (U142 VX2))
   Channel 3:  1.053 V -  (1.05V (U142 VX3))
   Channel 4:  3.328 V -  (3.3V_STDBY (U142 VP1))
   Channel 5: 11.675 V -  (12V (U142 VP2))
   Channel 6:  4.921 V -  (5.0V (U142 VP3))
   Channel 7:  6.713 V -  (7.0V (U142 VP4))
   Channel 8:  9.763 V -  (IBV (U142 VH))
   Channel 9:  1.048 V -  (1.05VB (U209 VX2))
   Channel 10:  1.209 V -  (1.2V (U209 VX3))
   Channel 11:  1.109 V -  (1.1V (U209 VX4))
   Channel 12:  0.999 V -  (1.0V (U209 VX5))
   Channel 13:  3.324 V -  (3.3V STDBY (U209 VP1))
   Channel 14:  2.504 V -  (2.5V (U209 VP2))
   Channel 15:  1.799 V -  (1.8V (U209 VP3))
   Channel 16:  1.899 V -  (1.9V (U209 VP4))
   Channel 17:  9.763 V -  (IBV (U209 VH))
   Channel 18:  2.048 V -  (VTT CPU0 (U83 VX2))
```

```
Channel 19:  2.048 V -  (VTT CPU1 (U83 VX3))
Channel 20:  2.048 V -  (VCC CPU0 (U83 VX4))
Channel 21:  2.048 V -  (VCC CPU1 (U83 VX5))
Channel 22:  1.516 V -  (1.5VA (U83 VP1))
Channel 23:  1.515 V -  (1.5VB (U83 VP2))
Channel 24:  8.937 V -  (IBV (U83 VH))
```

If the ASA was shut down because of a CPU voltage regulator thermal event, the following warning message appears:

```
WARNING: ASA was previously shut down due to a CPU Voltage Regulator running beyond the
max thermal operating temperature. The chassis and CPU need to be inspected immediately
for ventilation issues.
```

For more information, see syslog message 735024 in the syslog messages guide.

Related Commands

Command	Description
show version	Displays the hardware and software version.

CHAPTER 49

show failover through show ipsec stats traffic Commands

show failover

To display information about the failover status of the unit, use the **show failover** command in privileged EXEC mode.

show failover [**group** *num* | **history** | **interface** | **state** | **statistics**]

Syntax Description

group	Displays the running state of the specified failover group.
history	Displays failover history. The failover history displays past failover state changes and the reason for the state change. History information is cleared with the device is rebooted.
interface	Displays failover and stateful link information.
num	Failover group number.
state	Displays the failover state of both failover units. The information displayed includes the primary or secondary status of the unit, the Active/Standby status of the unit, and the last reported reason for failover. The fail reason remains in the output even when the reason for failure is cleared.
statistics	Displays transmit and receive packet count of failover command interface.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was modified. The output includes additional information.
8.2(2)	This command was modified. The output includes IPv6 addresses for firewall and failover interfaces. The Stateful Failover statitistics outpt includes information for the IPv6 neighbor discover table (IPv6 ND tbl) updates.

Usage Guidelines

The **show failover** command displays the dynamic failover information, interface status, and Stateful Failover statistics.

If both IPv4 and IPv6 addresses are configured on an interface, both addresses appear in the output. Because an interface can have more than one IPv6 address configured on it, only the link-local address is displayed. If there is no IPv4 address configured on the interface, the IPv4 address in the output appears as 0.0.0.0. If there is no IPv6 address configured on an interface, the address is simply omitted from the output.

The Stateful Failover Logical Update Statistics output appears only when Stateful Failover is enabled. The "xerr" and "rerr" values do not indicate errors in failover, but rather the number of packet transmit or receive errors.

Note Stateful Failover, and therefore Stateful Failover statistics output, is not available on the ASA 5505.

In the **show failover** command output, the stateful failover fields have the following values:

- Stateful Obj has these values:
  - xmit—Indicates the number of packets transmitted.
  - xerr—Indicates the number of transmit errors.
  - rcv—Indicates the number of packets received.
  - rerr—Indicates the number of receive errors.
- Each row is for a particular object static count as follows:
  - General—Indicates the sum of all stateful objects.
  - sys cmd—Refers to the logical update system commands, such as **login** or **stay alive**.
  - up time—Indicates the value for the ASA up time, which the active ASA passes on to the standby ASA.
  - RPC services—Remote Procedure Call connection information.
  - TCP conn—Dynamic TCP connection information.
  - UDP conn—Dynamic UDP connection information.
  - ARP tbl—Dynamic ARP table information.
  - Xlate_Timeout—Indicates connection translation timeout information.
  - IPv6 ND tbl—The IPv6 neighbor discovery table information.
  - VPN IKE upd—IKE connection information.
  - VPN IPSEC upd—IPsec connection information.
  - VPN CTCP upd—cTCP tunnel connection information.
  - VPN SDI upd—SDI AAA connection information.
  - VPN DHCP upd—Tunneled DHCP connection information.
  - SIP Session—SIP signalling session information.
  - Route Session—LU statistics of the route synhronization updates

If you do not enter a failover IP address, the **show failover** command displays 0.0.0.0 for the IP address, and monitoring of the interfaces remain in a "waiting" state. You must set a failover IP address for failover to work.

Table 49-1 describes the interface states for failover.

Table 49-1 Failover Interface States

State	Description
Normal	The interface is up and receiving hello packets from the corresponding interface on the peer unit.
Normal (Waiting)	The interface is up but has not yet received a hello packet from the corresponding interface on the peer unit. Verify that a standby IP address has been configured for the interface and that there is connectivity between the two interfaces.
Normal (Not-Monitored)	The interface is up but is not monitored by the failover process. The failure of an interface that is not monitored does not trigger failover.
No Link	The physical link is down.
No Link (Waiting)	The physical link is down and the interface has not yet received a hello packet from the corresponding interface on the peer unit. After restoring the link, verify that a standby IP address has been configured for the interface and that there is connectivity between the two interfaces.
No Link (Not-Monitored)	The physical link is down but is not monitored by the failover process. The failure of an interface that is not monitored does not trigger failover.
Link Down	The physical link is up, but the interface is administratively down.
Link Down (Waiting)	The physical link is up, but the interface is administratively down and the interface has not yet received a hello packet from the corresponding interface on the peer unit. After bringing the interface up (using the **no shutdown** command in interface configuration mode), verify that a standby IP address has been configured for the interface and that there is connectivity between the two interfaces.
Link Down (Not-Monitored)	The physical link is up, but the interface is administratively down but is not monitored by the failover process. The failure of an interface that is not monitored does not trigger failover.
Testing	The interface is in testing mode due to missed hello packets from the corresponding interface on the peer unit.
Failed	Interface testing has failed and the interface is marked as failed. If the interface failure causes the failover criteria to be met, then the interface failure causes a failover to the secondary unit or failover group.

In multiple configuration mode, only the **show failover** command is available in a security context; you cannot enter the optional keywords.

Examples

The following is sample output from the **show failover** command for Active/Standby Failover. The ASAs are ASA 5500 series ASAs, each equipped with a CSC SSM as shown in the details for slot 1 of each ASA. The security appliances use IPv6 addresses on the failover link (folink) and the inside interface.

```
hostname# show failover

Failover On
Cable status: N/A - LAN-based failover enabled
```

```
Failover unit Primary
Failover LAN Interface: folink Ethernet2 (up)
Unit Poll frequency 1 seconds, holdtime 3 seconds
Interface Poll frequency 15 seconds
Interface Policy 1
Monitored Interfaces 2 of 250 maximum
failover replication http
Last Failover at: 22:44:03 UTC Dec 8 2004
        This host: Primary - Active
                Active time: 13434 (sec)
                slot 0: ASA5520 hw/sw rev (1.0/7.1(0)10) status (Up Sys)
                  Interface inside (10.130.9.3/FE80::20d:29ff:fe1d:69f0): Normal
                  Interface outside (10.132.9.3): Normal
                  Interface folink (0.0.0.0/fe80::2a0:c9ff:fe03:101): Normal
                slot 1: ASA-SSM-20 hw/sw rev (1.0/CSC-SSM 5.0 (Build#1176)) status (Up/Up)
                  Logging port IP: 10.0.0.3/24
                  CSC-SSM, 5.0 (Build#1176)
        Other host: Secondary - Standby Ready
                Active time: 0 (sec)
                slot 0: ASA5520 hw/sw rev (1.0/7.1(0)10) status (Up Sys)
                  Interface inside (10.130.9.4/FE80::20d:29ff:fe2b:7ba6): Normal
                  Interface outside (10.132.9.4): Normal
                  Interface folink (0.0.0.0/fe80::2e0:b6ff:fe07:3096): Normal
                slot 1: ASA-SSM-20 hw/sw rev (1.0/CSC-SSM 5.0 (Build#1176)) status (Up/Up)
                  Logging port IP: 10.0.0.4/24
                  CSC-SSM, 5.0 (Build#1176)

Stateful Failover Logical Update Statistics
        Link : fover Ethernet2 (up)
        Stateful Obj    xmit       xerr       rcv        rerr
        General         0          0          0          0
        sys cmd         1733       0          1733       0
        up time         0          0          0          0
        RPC services    0          0          0          0
        TCP conn        6          0          0          0
        UDP conn        0          0          0          0
        ARP tbl         106        0          0          0
        Xlate_Timeout   0          0          0          0
        IPv6 ND tbl     22         0          0          0
        VPN IKE upd     15         0          0          0
        VPN IPSEC upd   90         0          0          0
        VPN CTCP upd    0          0          0          0
        VPN SDI upd     0          0          0          0
        VPN DHCP upd    0          0          0          0
       SIP Session    0          0          0          0
       Route Session   165      0          70         6

        Logical Update Queue Information
                        Cur     Max     Total
        Recv Q:         0       2       1733
        Xmit Q:         0       2       15225
```

The following is sample output from the **show failover** command for Active/Active Failover. In this example, only the admin context has IPv6 addresses assigned to the interfaces.

```
hostname# show failover

Failover On
Failover unit Primary
Failover LAN Interface: folink GigabitEthernet0/2 (up)
Unit Poll frequency 1 seconds, holdtime 15 seconds
Interface Poll frequency 4 seconds
Interface Policy 1
Monitored Interfaces 8 of 250 maximum
```

```
failover replication http
Group 1 last failover at: 13:40:18 UTC Dec 9 2004
Group 2 last failover at: 13:40:06 UTC Dec 9 2004

  This host:    Primary
  Group 1       State:          Active
                Active time:    2896 (sec)
  Group 2       State:          Standby Ready
                Active time:    0 (sec)

                slot 0: ASA-5530 hw/sw rev (1.0/7.0(0)79) status (Up Sys)
                slot 1: SSM-IDS-20 hw/sw rev (1.0/5.0(0.11)S91(0.11)) status (Up)
                admin Interface outside (10.132.8.5): Normal
                admin Interface folink (10.132.9.5/fe80::2a0:c9ff:fe03:101): Normal
                admin Interface inside (10.130.8.5/fe80::2a0:c9ff:fe01:101): Normal
                admin Interface fourth (10.130.9.5/fe80::3eff:fe11:6670): Normal
                ctx1 Interface outside (10.1.1.1): Normal
                ctx1 Interface inside (10.2.2.1): Normal
                ctx2 Interface outside (10.3.3.2): Normal
                ctx2 Interface inside (10.4.4.2): Normal

  Other host:   Secondary
  Group 1       State:          Standby Ready
                Active time:    190 (sec)
  Group 2       State:          Active
                Active time:    3322 (sec)

                slot 0: ASA-5530 hw/sw rev (1.0/7.0(0)79) status (Up Sys)
                slot 1: SSM-IDS-20 hw/sw rev (1.0/5.0(0.1)S91(0.1)) status (Up)
                admin Interface outside (10.132.8.6): Normal
                admin Interface folink (10.132.9.6/fe80::2a0:c9ff:fe03:102): Normal
                admin Interface inside (10.130.8.6/fe80::2a0:c9ff:fe01:102): Normal
                admin Interface fourth (10.130.9.6/fe80::3eff:fe11:6671): Normal
                ctx1 Interface outside (10.1.1.2): Normal
                ctx1 Interface inside (10.2.2.2): Normal
                ctx2 Interface outside (10.3.3.1): Normal
                ctx2 Interface inside (10.4.4.1): Normal

Stateful Failover Logical Update Statistics
        Link : third GigabitEthernet0/2 (up)
        Stateful Obj    xmit       xerr       rcv        rerr
        General         0          0          0          0
        sys cmd         380        0          380        0
        up time         0          0          0          0
        RPC services    0          0          0          0
        TCP conn        1435       0          1450       0
        UDP conn        0          0          0          0
        ARP tbl         124        0          65         0
        Xlate_Timeout   0          0          0          0
        IPv6 ND tbl     22         0          0          0
        VPN IKE upd     15         0          0          0
        VPN IPSEC upd   90         0          0          0
        VPN CTCP upd    0          0          0          0
        VPN SDI upd     0          0          0          0
        VPN DHCP upd    0          0          0          0
       SIP Session    0          0          0          0

        Logical Update Queue Information
                        Cur     Max     Total
        Recv Q:         0       1       1895
        Xmit Q:         0       0       1940
```

The following is sample output from the **show failover** command on the ASA 5505:

```
Failover On
Failover unit Primary
Failover LAN Interface: fover Vlan150 (up)
Unit Poll frequency 1 seconds, holdtime 15 seconds
Interface Poll frequency 5 seconds, holdtime 25 seconds
Interface Policy 1
Monitored Interfaces 4 of 250 maximum
Version: Ours 7.2(0)55, Mate 7.2(0)55
Last Failover at: 19:59:58 PST Apr 6 2006

        This host: Primary - Active
                Active time: 34 (sec)
                slot 0: ASA5505 hw/sw rev (1.0/7.2(0)55) status (Up Sys)
                  Interface inside (192.168.1.1): Normal
                  Interface outside (192.168.2.201): Normal
                  Interface dmz (172.16.0.1): Normal
                  Interface test (172.23.62.138): Normal
                slot 1: empty

        Other host: Secondary - Standby Ready
                Active time: 0 (sec)
                slot 0: ASA5505 hw/sw rev (1.0/7.2(0)55) status (Up Sys)
                  Interface inside (192.168.1.2): Normal
                  Interface outside (192.168.2.211): Normal
                  Interface dmz (172.16.0.2): Normal
                  Interface test (172.23.62.137): Normal
                slot 1: empty
```

The following is sample output from the **show failover state** command for an active-active setup:

```
hostname(config)# show failover state

               State          Last Failure Reason      Date/Time
This host  -   Secondary
    Group 1    Failed         Backplane Failure        03:42:29 UTC Apr 17 2009
    Group 2    Failed         Backplane Failure        03:42:29 UTC Apr 17 2009
Other host -   Primary
    Group 1    Active         Comm Failure             03:41:12 UTC Apr 17 2009
    Group 2    Active         Comm Failure             03:41:12 UTC Apr 17 2009

====Configuration State===
        Sync Done
====Communication State===
        Mac set
```

The following is sample output from the **show failover state** command for an active-standby setup:

```
hostname(config)# show failover state

               State          Last Failure Reason      Date/Time
This host  -   Primary
               Negotiation    Backplane Failure        15:44:56 UTC Jun 20 2009
Other host -   Secondary
               Not Detected   Comm Failure             15:36:30 UTC Jun 20 2009

====Configuration State===
        Sync Done
====Communication State===
        Mac set
```

Table 49-2 describes the output of the **show failover state** command.

Table 49-2 show failover state Output Description

Field	Description
Configuration State	Displays the state of configuration synchronization. The following are possible configuration states for the standby unit: • **Config Syncing - STANDBY**—Set while the synchronized configuration is being executed. • **Interface Config Syncing - STANDBY** • **Sync Done - STANDBY**—Set when the standby unit has completed a configuration synchronization from the active unit. The following are possible configuration states for the active unit: • **Config Syncing**—Set on the active unit when it is performing a configuration synchronization to the standby unit. • **Interface Config Syncing** • **Sync Done**—Set when the active unit has completed a successful configuration synchronization to the standby unit. • **Ready for Config Sync**—Set on the active unit when the standby unit signals that it is ready to receive a configuration synchronization.
Communication State	Displays the status of the MAC address synchronization. • **Mac set**—The MAC addresses have been synchronized from the peer unit to this unit. • **Updated Mac**—Used when a MAC address is updated and needs to be synchronized to the other unit. Also used during the transition period where the unit is updating the local MAC addresses synchronized from the peer unit.
Date/Time	Displays a date and timestamp for the failure.
Last Failure Reason	Displays the reason for the last reported failure. This information is not cleared, even if the failure condition is cleared. This information changes only when a failover occurs. The following are possible fail reasons: • **Ifc Failure**—The number of interfaces that failed met the failover criteria and caused failover. • **Comm Failure**—The failover link failed or peer is down. • **Backplane Failure**
State	Displays the Primary/Secondary and Active/Standby status for the unit.
This host/Other host	This host indicates information for the device upon which the command was executed. Other host indicates information for the other device in the failover pair.

The following is sample output from the **show failover history** command:

```
hostname(config)# show failover history
==============================================================================
```

```
Group     From State                To State                  Reason
================================================================================
. . .
03:42:29 UTC Apr 17 2009
    0     Sync Config               Failed
Backplane failed

03:42:29 UTC Apr 17 2009
    1     Standby Ready             Failed
Backplane failed

03:42:29 UTC Apr 17 2009
    2     Standby Ready             Failed
Backplane failed

03:44:39 UTC Apr 17 2009
    0     Failed                    Negotiation
Backplane operational

03:44:40 UTC Apr 17 2009
    1     Failed                    Negotiation
Backplane operational

03:44:40 UTC Apr 17 2009
    2     Failed                    Negotiation
Backplane operational

================================================================================
```

Each entry provides the time and date the state change occurred, the beginning state, the resulting state, and the reason for the state change. The newest entries are located at the bottom of the display. Older entries appear at the top. A maximum of 60 entries can be displayed. Once the maximum number of entries has been reached, the oldest entries are removed from the top of the output as new entries are added to the bottom.

Table 49-3 shows the failover states. There are two types of states—stable and transient. Stable states are states that the unit can remain in until some occurrence, such as a failure, causes a state change. A transient state is a state that the unit passes through while reaching a stable state.

Table 49-3 Failover States

States	Description
Disabled	Failover is disabled. This is a stable state.
Failed	The unit is in the failed state. This is a stable state.
Negotiation	The unit establishes the connection with peer and negotiates with peer to determine software version compatibility and Active/Standby role. Depending upon the role that is negotiated, the unit will go through the Standby Unit States or the Active Unit States or enter the failed state. This is a transient state.
Not Detected	The ASA cannot detect the presence of a peer. This can happen when the ASA boots up with failover enabled but the peer is not present or is powered down.
Standby Unit States	
Cold Standby	The unit waits for the peer to reach the Active state. When the peer unit reaches the Active state, this unit progresses to the Standby Config state. This is a transient state.

Table 49-3 Failover States (continued)

States	Description
Sync Config	The unit requests the running configuration from the peer unit. If an error occurs during the configuration synchronization, the unit returns to the Initialization state. This is a transient state.
Sync File System	The unit synchronizes the file system with the peer unit. This is a transient state.
Bulk Sync	The unit receives state information from the peer. This state only occurs when Stateful Failover is enabled. This is a transient state.
Standby Ready	The unit is ready to take over if the active unit fails. This is a stable state.
Active Unit States	
Just Active	The first state the unit enters when becoming the active unit. During this state a message is sent to the peer alerting the peer that the unit is becoming active and the IP and MAC addresses are set for the interfaces. This is a transient state.
Active Drain	Queues messages from the peer are discarded. This is a transient state.
Active Applying Config	The unit is applying the system configuration. This is a transient state.
Active Config Applied	The unit has finished applying the system configuration. This is a transient state.
Active	The unit is active and processing traffic. This is a stable state.

Each state change is followed by a reason for the state change. The reason typically remains the same as the unit progresses through the transient states to the stable state. The following are the possible state change reasons:

- No Error
- Set by the CI config cmd
- Failover state check
- Failover interface become OK
- HELLO not heard from mate
- Other unit has different software version
- Other unit operating mode is different
- Other unit license is different
- Other unit chassis configuration is different
- Other unit card configuration is different
- Other unit want me Active
- Other unit want me Standby
- Other unit reports that I am failed
- Other unit reports that it is failed
- Configuration mismatch
- Detected an Active mate
- No Active unit found

- Configuration synchronization done
- Recovered from communication failure
- Other unit has different set of vlans configured
- Unable to verify vlan configuration
- Incomplete configuration synchronization
- Configuration synchronization failed
- Interface check
- My communication failed
- ACK not received for failover message
- Other unit got stuck in learn state after sync
- No power detected from peer
- No failover cable
- HA state progression failed
- Detect service card failure
- Service card in other unit has failed
- My service card is as good as peer
- LAN Interface become un-configured
- Peer unit just reloaded
- Switch from Serial Cable to LAN-Based fover
- Unable to verify state of config sync
- Auto-update request
- Unknown reason

The following is sample output from the **show failover interface** command. The device has an IPv6 address configured on the failover interface.

```
hostname(config)# sh fail int
        interface folink GigabitEthernet0/2
                System IP Address: 2001:a0a:b00::a0a:b70/64
                My IP Address    : 2001:a0a:b00::a0a:b70
                Other IP Address : 2001:a0a:b00::a0a:b71
```

Related CommandsF

Command	Description
show running-config failover	Displays the **failover** commands in the current configuration.

show failover exec

To display the **failover exec** command mode for the specified unit, use the **show failover exec** command in privileged EXEC mode.

show failover exec {**active** | **standby** | **mate**}

Syntax Description

active	Displays the **failover exec** command mode for the active unit.
mate	Displays the **failover exec** command mode for the peer unit.
standby	Displays the **failover exec** command mode for the standby unit.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

The **failover exec** command creates a session with the specified device. By default, that session is in global configuration mode. You can change the command mode of that session by sending the appropriate command (such as the **interface** command) using the **failover exec** command. Changing **failover exec** command modes for the specified device does not change the command mode for the session you are using to access the device. Changing commands modes for your current session to the device does not affect the command mode used by the **failover exec** command.

The **show failover exec** command displays the command mode on the specified device in which commands sent with the **failover exec** command are executed.

Examples

The following is sample output from the **show failover exec** command. This example demonstrates that the command mode for the unit where the **failover exec** commands are being entered does not have to be the same as the **failover exec** command mode where the commands are being executed.

In this example, an administrator logged into the standby unit adds a name to an interface on the active unit. The second time the **show failover exec mate** command is entered in this example shows the peer device in interface configuration mode. Commands sent to the device with the **failover exec** command are executed in that mode.

```
hostname(config)# show failover exec mate
```

```
Active unit Failover EXEC is at config mode

! The following command changes the standby unit failover exec mode
! to interface configuration mode.
hostname(config)# failover exec mate interface GigabitEthernet0/1
hostname(config)# show failover exec mate

Active unit Failover EXEC is at interface sub-command mode

! Because the following command is sent to the active unit, it is replicated
! back to the standby unit.
hostname(config)# failover exec mate nameif test
```

Related Commands

Command	Description
failover exec	Executes the supplied command on the designated unit in a failover pair.

show file

To display information about the file system, use the **show file** command in privileged EXEC mode.

show file descriptors | system | information *filename*

Syntax Description

descriptors	Displays all open file descriptors.
filename	Specifies the filename.
information	Displays information about a specific file, including partner application package files.
system	Displays the size, bytes available, type of media, flags, and prefix information about the disk file system.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.
8.2(1)	The capability to view information about partner application package files was added.

Examples

The following is sample output from the **show file descriptors** command:

```
hostname# show file descriptors
No open file descriptors
hostname# show file system
File Systems:
   Size(b)     Free(b)    Type  Flags  Prefixes
* 60985344    60973056    disk    rw     disk:
```

The following is sample output fromthe **show file info** command:

```
hostname# show file info disk0:csc_embd1.0.1000.pkg
type is package (csc)
file size is 17204149 bytes version 1
```

Related Commands

Command	Description
dir	Displays the directory contents.
pwd	Displays the current working directory.

show firewall

To show the current firewall mode (routed or transparent), use the **show firewall** command in privileged EXEC mode.

show firewall

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show firewall** command:

```
hostname# show firewall
Firewall mode: Router
```

Related Commands

Command	Description
firewall transparent	Sets the firewall mode.
show mode	Shows the current context mode, either single or multiple.

show firewall module version

To view the software version number of the ASA Services Module, enter the **show firewall module version** command in privileged EXEC mode.

show firewall switch {**1** | **2**} **module** [*module_number*] **version**

Syntax Description

module_number	(Optional) Specifies the module number.
switch {**1** | **2**}	Applies to VSS users only.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show firewall module version** command:

```
Router# show firewall switch 1 module 2 version
ASA Service Module 2:

Sw Version: 100.7(8)19
```

Related Commands

Command	Description
firewall module	Assigns a VLAN group to an ASA.
firewall vlan-group	Creates a group of VLANs.
show module	Shows all installed modules.

show flash

To display the contents of the internal Flash memory, use the **show flash:** command in privileged EXEC mode.

show flash: all | controller | filesys

Note In the ASA, the **flash** keyword is aliased to **disk0**.

Syntax Description

all	Displays all Flash information.
controller	Displays file system controller information.
filesys	Displays file system information.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show flash:** command:

```
hostname# show flash:
-#- --length-- -----date/time------ path
 11 1301       Feb 21 2005 18:01:34 test.cfg
 12 1949       Feb 21 2005 20:13:36 pepsi.cfg
 13 2551       Jan 06 2005 10:07:36 Leo.cfg
 14 609223     Jan 21 2005 07:14:18 rr.cfg
 15 1619       Jul 16 2004 16:06:48 hackers.cfg
 16 3184       Aug 03 2004 07:07:00 old_running.cfg
 17 4787       Mar 04 2005 12:32:18 admin.cfg
 20 1792       Jan 21 2005 07:29:24 Marketing.cfg
 21 7765184    Mar 07 2005 19:38:30 asdmfile-RLK
 22 1674       Nov 11 2004 02:47:52 potts.cfg
 23 1863       Jan 21 2005 07:29:18 r.cfg
 24 1197       Jan 19 2005 08:17:48 tst.cfg
 25 608554     Jan 13 2005 06:20:54 500kconfig
 26 5124096    Feb 20 2005 08:49:28 cdisk70102
 27 5124096    Mar 01 2005 17:59:56 cdisk70104
 28 2074       Jan 13 2005 08:13:26 negateACL
 29 5124096    Mar 07 2005 19:56:58 cdisk70105
```

```
 30 1276       Jan 28 2005 08:31:58 steel
 31 7756788    Feb 24 2005 12:59:46 asdmfile.50074.dbg
 32 7579792    Mar 08 2005 11:06:56 asdmfile.gusingh
 33 7764344    Mar 04 2005 12:17:46 asdmfile.50075.dbg
 34 5124096    Feb 24 2005 11:50:50 cdisk70103
 35 15322      Mar 04 2005 12:30:24 hs_err_pid2240.log

10170368 bytes available (52711424 bytes used)
```

Related Commands

Command	Description
dir	Displays the directory contents.
show disk0:	Displays the contents of the internal Flash memory.
show disk1:	Displays the contents of the external Flash memory card.

show flow-export counters

To display runtime counters associated with NetFlow data, use the **show flow-export counters** command in privileged EXEC mode.

show flow-export counters

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.1(1)	This command was introduced.
9.0(1)	A new error counter was added for source port allocation failure.

Usage Guidelines

The runtime counters include statistical data as well as error data.

Examples

The following is sample output from the **show flow-export counters** command, which shows runtime counters that are associated with NetFlow data:

```
hostname# show flow-export counters

destination: inside 209.165.200.224 2055
 Statistics:
  packets sent                      1000
 Errors:
  block allocation failure             0
  invalid interface                    0
  template send failure                0
  no route to collector                0
  source port allocation               0
```

Related Commands

Commands	Description
clear flow-export counters	Resets all runtime counters in NetFlow to zero.
flow-export destination	Specifies the IP address or hostname of the NetFlow collector, and the UDP port on which the NetFlow collector is listening.
flow-export template timeout-rate	Controls the interval at which the template information is sent to the NetFlow collector.
logging flow-export-syslogs enable	Enables syslog messages after you have entered the **logging flow-export-syslogs disable** command, and the syslog messages that are associated with NetFlow data.

show fragment

To display the operational data of the IP fragment reassembly module, enter the **show fragment** command in privileged EXEC mode.

show fragment [*interface*]

Syntax Description

interface	(Optional) Specifies the ASA interface.

Defaults

If an *interface* is not specified, the command applies to all interfaces.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC mode	•	•	•	•	•

Command History

Release	Modification
7.0(1)	The command was separated into two commands, **show fragment** and **show running-config fragment**, to separate the configuration data from the operational data.

Examples

This example shows how to display the operational data of the IP fragment reassembly module:

```
hostname# show fragment
Interface: inside
    Size: 200, Chain: 24, Timeout: 5, Threshold: 133
    Queue: 0, Assembled: 0, Fail: 0, Overflow: 0
Interface: outside1
    Size: 200, Chain: 24, Timeout: 5, Threshold: 133
    Queue: 0, Assembled: 0, Fail: 0, Overflow: 0
Interface: test1
    Size: 200, Chain: 24, Timeout: 5, Threshold: 133
    Queue: 0, Assembled: 0, Fail: 0, Overflow: 0
Interface: test2
    Size: 200, Chain: 24, Timeout: 5, Threshold: 133
    Queue: 0, Assembled: 0, Fail: 0, Overflow: 0
```

Related Commands

Command	Description
clear configure fragment	Clears the IP fragment reassembly configuration and resets the defaults.
clear fragment	Clears the operational data of the IP fragment reassembly module.

Command	Description
fragment	Provides additional management of packet fragmentation and improves compatibility with NFS.
show running-config fragment	Displays the IP fragment reassembly configuration.

show gc

To display the garbage collection process statistics, use the **show gc** command in privileged EXEC mode.

show gc

Syntax Description

This command has no arguments or keywords.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show gc** command:

```
hostname# show gc

Garbage collection process stats:
Total tcp conn delete response             :            0
Total udp conn delete response             :            0
Total number of zombie cleaned             :            0
Total number of embryonic conn cleaned     :            0
Total error response                       :            0
Total queries generated                    :            0
Total queries with conn present response   :            0
Total number of sweeps                     :          946
Total number of invalid vcid               :            0
Total number of zombie vcid                :            0
```

Related Commands

Command	Description
clear gc	Removes the garbage collection process statistics.

show h225

To display information for H.225 sessions established across the ASA, use the **show h225** command in privileged EXEC mode.

show h225

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **show h225** command displays information for H.225 sessions established across the ASA. Along with the **debug h323 h225 event**, **debug h323 h245 event**, and **show local-host** commands, this command is used for troubleshooting H.323 inspection engine issues.

Before using the **show h225**, **show h245**, or **show h323-ras** commands, we recommend that you configure the **pager** command. If there are a lot of session records and the **pager** command is not configured, it may take a while for the **show** output to reach its end. If there is an abnormally large number of connections, check that the sessions are timing out based on the default timeout values or the values set by you. If they are not, then there is a problem that needs to be investigated.

Examples

The following is sample output from the **show h225** command:

```
hostname# show h225
Total H.323 Calls: 1
1 Concurrent Call(s) for
| Local: | 10.130.56.3/1040 | Foreign: 172.30.254.203/1720
| 1. CRV 9861
| Local: | 10.130.56.3/1040 | Foreign: 172.30.254.203/1720
0 Concurrent Call(s) for
| Local: | 10.130.56.4/1050 | Foreign: 172.30.254.205/1720
```

This output indicates that there is currently 1 active H.323 call going through the ASA between the local endpoint 10.130.56.3 and foreign host 172.30.254.203, and for these particular endpoints, there is 1 concurrent call between them, with a CRV (Call Reference Value) for that call of 9861.

For the local endpoint 10.130.56.4 and foreign host 172.30.254.205, there are 0 concurrent Calls. This means that there is no active call between the endpoints even though the H.225 session still exists. This could happen if, at the time of the **show h225** command, the call has already ended but the H.225 session has not yet been deleted. Alternately, it could mean that the two endpoints still have a TCP connection opened between them because they set "maintainConnection" to TRUE, so the session is kept open until they set it to FALSE again, or until the session times out based on the H.225 timeout value in your configuration.

Related Commands

Commands	Description
debug h323	Enables the display of debug information for H.323.
inspect h323	Enables H.323 application inspection.
show h245	Displays information for H.245 sessions established across the ASA by endpoints using slow start.
show h323-ras	Displays information for H.323 RAS sessions established across the ASA.
timeout h225 | h323	Configures idle time after which an H.225 signalling connection or an H.323 control connection will be closed.

show h245

To display information for H.245 sessions established across the ASA by endpoints using slow start, use the **show h245** command in privileged EXEC mode.

show h245

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **show h245** command displays information for H.245 sessions established across the ASA by endpoints using slow start. (Slow start is when the two endpoints of a call open another TCP control channel for H.245. Fast start is where the H.245 messages are exchanged as part of the H.225 messages on the H.225 control channel.) Along with the **debug h323 h245 event**, **debug h323 h225 event**, and **show local-host** commands, this command is used for troubleshooting H.323 inspection engine issues.

Examples

The following is sample output from the **show h245** command:

```
hostname# show h245
Total: 1
  | LOCAL | TPKT | FOREIGN | TPKT
1 | 10.130.56.3/1041 | 0 | 172.30.254.203/1245 | 0
  | MEDIA: LCN 258 Foreign 172.30.254.203 RTP 49608 RTCP 49609
  | Local | 10.130.56.3 RTP 49608 RTCP 49609
  | MEDIA: LCN 259 Foreign 172.30.254.203 RTP 49606 RTCP 49607
  | Local | 10.130.56.3 RTP 49606 RTCP 49607
```

There is currently one H.245 control session active across the ASA. The local endpoint is 10.130.56.3, and we are expecting the next packet from this endpoint to have a TPKT header because the TPKT value is 0. (The TKTP header is a 4-byte header preceding each H.225/H.245 message. It gives the length of the message, including the 4-byte header.) The foreign host endpoint is 172.30.254.203, and we are expecting the next packet from this endpoint to have a TPKT header because the TPKT value is 0.

The media negotiated between these endpoints have a LCN (logical channel number) of 258 with the foreign RTP IP address/port pair of 172.30.254.203/49608 and a RTCP IP address/port of 172.30.254.203/49609 with a local RTP IP address/port pair of 10.130.56.3/49608 and a RTCP port of 49609.

The second LCN of 259 has a foreign RTP IP address/port pair of 172.30.254.203/49606 and a RTCP IP address/port pair of 172.30.254.203/49607 with a local RTP IP address/port pair of 10.130.56.3/49606 and RTCP port of 49607.

Related Commands

Commands	Description
debug h323	Enables the display of debug information for H.323.
inspect h323	Enables H.323 application inspection.
show h245	Displays information for H.245 sessions established across the ASA by endpoints using slow start.
show h323-ras	Displays information for H.323 RAS sessions established across the ASA.
timeout h225 | h323	Configures idle time after which an H.225 signalling connection or an H.323 control connection will be closed.

show h323-ras

To display information for H.323 RAS sessions established across the ASA between a gatekeeper and its H.323 endpoint, use the **show h323-ras** command in privileged EXEC mode.

show h323-ras

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **show h323-ras** command displays information for H.323 RAS sessions established across the ASA between a gatekeeper and its H.323 endpoint. Along with the **debug h323 ras event** and **show local-host** commands, this command is used for troubleshooting H.323 RAS inspection engine issues.

The **show h323-ras** command displays connection information for troubleshooting H.323 inspection engine issues, and is described in the **inspect protocol h323 {h225 | ras}** command page.

Examples

The following is sample output from the **show h323-ras** command:

```
hostname# show h323-ras
Total: 1
| GK | Caller
| 172.30.254.214 10.130.56.14
hostname#
```

This output shows that there is one active registration between the gatekeeper 172.30.254.214 and its client 10.130.56.14.

Related Commands

Commands	Description
debug h323	Enables the display of debug information for H.323.
inspect h323	Enables H.323 application inspection.

Commands	Description
show h245	Displays information for H.245 sessions established across the ASA by endpoints using slow start.
show h323-ras	Displays information for H.323 RAS sessions established across the ASA.
timeout h225 | h323	Configures idle time after which an H.225 signalling connection or an H.323 control connection will be closed.

show history

To display the previously entered commands, use the **show history** command in user EXEC mode.

show history

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
User EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **show history** command lets you display previously entered commands. You can examine commands individually with the up and down arrows, enter **^p** to display previously entered lines, or enter **^n** to display the next line.

Examples

The following example shows sample output from the **show history** command in user EXEC mode:

```
hostname> show history
    show history
    help
    show history
```

The following example shows sample output from the **show history** command in privileged EXEC mode:

```
hostname# show history
    show history
    help
    show history
    enable
    show history
```

The following example shows sample output from the **show history** command in global configuration mode:

```
hostname(config)# show history
    show history
```

```
help
show history
enable
show history
config t
show history
```

Related Commands

Command	Description
help	Displays help information for the command specified.

show icmp

To display the ICMP configuration, use the **show icmp** command in privileged EXEC mode.

show icmp

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was previously existing.

Usage Guidelines

The **show icmp** command displays the ICMP configuration.

Examples

The following example shows the ICMP configuration:

```
hostname# show icmp
```

Related Commands

clear configure icmp	Clears the ICMP configuration.
debug icmp	Enables the display of debugging information for ICMP.
icmp	Configures access rules for ICMP traffic that terminates at an ASA interface.
inspect icmp	Enables or disables the ICMP inspection engine.
timeout icmp	Configures the idle timeout for ICMP.

show idb

To display information about the status of interface descriptor blocks, use the **show idb** command in privileged EXEC mode.

show idb

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
User EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

IDBs are the internal data structure representing interface resources. See the "Examples" section for a description of the display output.

Examples

The following is sample output from the **show idb** command:

```
hostname# show idb
Maximum number of Software IDBs 280.  In use 23.

                    HWIDBs     SWIDBs
             Active 6          21
           Inactive 1          2
         Total IDBs 7          23
 Size each (bytes) 116        212
        Total bytes 812        4876

HWIDB#  1 0xbb68ebc  Control0/0
HWIDB#  2 0xcd47d84  GigabitEthernet0/0
HWIDB#  3 0xcd4c1dc  GigabitEthernet0/1
HWIDB#  4 0xcd5063c  GigabitEthernet0/2
HWIDB#  5 0xcd54a9c  GigabitEthernet0/3
HWIDB#  6 0xcd58f04  Management0/0

SWIDB#  1 0x0bb68f54 0x01010001 Control0/0
SWIDB#  2 0x0cd47e1c 0xffffffff GigabitEthernet0/0
SWIDB#  3 0x0cd772b4 0xffffffff GigabitEthernet0/0.1
```

```
  PEER IDB#  1 0x0d44109c 0xffffffff     3  GigabitEthernet0/0.1
  PEER IDB#  2 0x0d2c0674 0x00020002     2  GigabitEthernet0/0.1
  PEER IDB#  3 0x0d05a084 0x00010001     1  GigabitEthernet0/0.1
SWIDB#  4 0x0bb7501c 0xffffffff GigabitEthernet0/0.2
SWIDB#  5 0x0cd4c274 0xffffffff GigabitEthernet0/1
SWIDB#  6 0x0bb75704 0xffffffff GigabitEthernet0/1.1
  PEER IDB#  1 0x0cf8686c 0x00020003     2  GigabitEthernet0/1.1
SWIDB#  7 0x0bb75dec 0xffffffff GigabitEthernet0/1.2
  PEER IDB#  1 0x0d2c08ac 0xffffffff     2  GigabitEthernet0/1.2
SWIDB#  8 0x0bb764d4 0xffffffff GigabitEthernet0/1.3
  PEER IDB#  1 0x0d441294 0x00030001     3  GigabitEthernet0/1.3
SWIDB#  9 0x0cd506d4 0x01010002 GigabitEthernet0/2
SWIDB# 10 0x0cd54b34 0xffffffff GigabitEthernet0/3
  PEER IDB#  1 0x0d3291ec 0x00030002     3  GigabitEthernet0/3
  PEER IDB#  2 0x0d2c0aa4 0x00020001     2  GigabitEthernet0/3
  PEER IDB#  3 0x0d05a474 0x00010002     1  GigabitEthernet0/3
SWIDB# 11 0x0cd58f9c 0xffffffff Management0/0
  PEER IDB#  1 0x0d05a65c 0x00010003     1  Management0/0
```

Table 49-4 shows each field description.

Table 49-4 show idb stats Fields

Field	Description
HWIDBs	Shows the statistics for all HWIDBs. HWIDBs are created for each hardware port in the system.
SWIDBs	Shows the statistics for all SWIDBs. SWIDBs are created for each main and subinterface in the system, and for each interface that is allocated to a context. Some other internal software modules also create IDBs.
HWIDB#	Specifies a hardware interface entry. The IDB sequence number, address, and interface name is displayed in each line.
SWIDB#	Specifies a software interface entry. The IDB sequence number, address, corresponding vPif id, and interface name are displayed in each line.
PEER IDB#	Specifies an interface allocated to a context. The IDB sequence number, address, corresponding vPif id, context id and interface name are displayed in each line.

Related Commands

Command	Description
interface	Configures an interface and enters interface configuration mode.
show interface	Displays the runtime status and statistics of interfaces.

show igmp groups

To display the multicast groups with receivers that are directly connected to the ASA and that were learned through IGMP, use the **show igmp groups** command in privileged EXEC mode.

show igmp groups [[**reserved** | *group*] [*if_name*] [**detail**]] | **summary**]

Syntax Description

detail	(Optional) Provides a detailed description of the sources.
group	(Optional) The address of an IGMP group. Including this optional argument limits the display to the specified group.
if_name	(Optional) Displays group information for the specified interface.
reserved	(Optional) Displays information about reserved groups.
summary	(Optional) Displays group joins summary information.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

If you omit all optional arguments and keywords, the **show igmp groups** command displays all directly connected multicast groups by group address, interface type, and interface number.

Examples

The following is sample output from the **show igmp groups** command:

```
hostname#show igmp groups

IGMP Connected Group Membership
Group Address    Interface            Uptime    Expires   Last Reporter
224.1.1.1        inside               00:00:53  00:03:26  192.168.1.6
```

Related Commands

Command	Description
show igmp interface	Displays multicast information for an interface.

show igmp interface

To display multicast information for an interface, use the **show igmp interface** command in privileged EXEC mode.

show igmp interface [*if_name*]

Syntax Description

if_name	(Optional) Displays IGMP group information for the selected interface.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was modified. The **detail** keyword was removed.

Usage Guidelines

If you omit the optional *if_name* argument, the **show igmp interface** command displays information about all interfaces.

Examples

The following is sample output from the **show igmp interface** command:

```
hostname# show igmp interface inside

inside is up, line protocol is up
 Internet address is 192.168.37.6, subnet mask is 255.255.255.0
 IGMP is enabled on interface
 IGMP query interval is 60 seconds
 Inbound IGMP access group is not set
 Multicast routing is enabled on interface
 Multicast TTL threshold is 0
 Multicast designated router (DR) is 192.168.37.33
 No multicast groups joined
```

Related Commands

Command	Description
show igmp groups	Displays the multicast groups with receivers that are directly connected to the ASA and that were learned through IGMP.

show igmp traffic

To display IGMP traffic statistics, use the **show igmp traffic** command in privileged EXEC mode.

show igmp traffic

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show igmp traffic** command:

```
hostname# show igmp traffic

IGMP Traffic Counters
Elapsed time since counters cleared: 00:02:30
                              Received     Sent
Valid IGMP Packets               3           6
Queries                          2           6
Reports                          1           0
Leaves                           0           0
Mtrace packets                   0           0
DVMRP packets                    0           0
PIM packets                      0           0

Errors:
Malformed Packets                0
Martian source                   0
Bad Checksums                    0
```

Related Commands

Command	Description
clear igmp counters	Clears all IGMP statistic counters.
clear igmp traffic	Clears the IGMP traffic counters.

show import webvpn

To list the files, customization objects, translation tables, or plug-ins in flash memory that customize and localize the ASA or the AnyConnect Secure Mobility Client, use the **show import webvpn** command in privileged EXEC mode.

show import webvpn {**AnyConnect-customization** | **customization** | **mst-translation** | **plug-in** | **translation-table** | **url-list** | **webcontent**}[**detailed** | **xml-output**]

Syntax Description

AnyConnect-customization	Displays resource files, executable files, and MS transforms in the ASA flash memory that customize the AnyConnect client GUI.
customization	Displays XML customization objects in the ASA flash memory that customize the clientless VPN portal (filenames base64 decoded).
mst-translation	Displays MS transforms in the ASA flash memory that translate the AnyConnect client installer program.
plug-in	Displays plug-in modules in the ASA flash memory (third-party Java-based client applications, including SSH, VNC, and RDP).
translation-table	Displays translation tables in the ASA flash memory that translate the language of user messages displayed by the clientless portal, Secure Desktop, and plug-ins.
url-list	Displays URL lists in the ASA flash memory used by the clientless portal (filenames base64 decoded).
webcontent	Displays content in ASA flash memory used by the clientless portal, clientless applications, and plugins for online help visible to end users.
detailed	Displays the path in flash memory of the file(s) and the hash.
xml-output	Displays the XML of the file(s).

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC mode	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.
8.2(1)	The **AnyConnect-customization** keyword was added.

Usage Guidelines

Use the **show import webvpn** command to identify the custom data and the Java-based client applications available to clientless SSL VPN users. The displayed list itemizes all of the requested data types that are in flash memory on the ASA.

Example

The following illustrates the WebVPN data displayed by various **show import webvpn** command:

```
hostname# show import webvpn plug
ssh
rdp
vnc
hostname#

hostname#show import webvpn plug detail
post GXN2BIGGOAOkBMibDQsMu2GWZ3Q= Tue, 29 Apr 2008 19:57:03 GMT
rdp fHeyReIOUwDCgAL9HdTsPnjdBOo= Tue, 15 Sep 2009 23:23:56 GMT
rdp2 shw8c22T2SsILLk6zyCd6H6VOz8= Wed, 11 Feb 2009 21:17:54 GMT
hostname# show import webvpn customization
Template
DfltCustomization
hostname#

hostname# show import webvpn translation-table
Translation Tables' Templates:
  AnyConnect
  PortForwarder
  banners
  csd
  customization
  url-list
  webvpn
Translation Tables:
  ru                                                customization
  ua                                                customization
hostname#

hostname# show import webvpn url-list
Template
No bookmarks are currently defined
hostname#

hostname# show import webvpn webcontent
No custom webcontent is loaded
hostname#
```

Related Commands

Command	Description
revert webvpn all	Removes all WebVPN data and plug-in current on the ASA.

show interface

To view interface statistics, use the **show interface** command in privileged EXEC mode.

show interface [{*physical_interface* | **redundant***number*}[**.***subinterface*] | *mapped_name* | *interface_name* | **vlan** *number*] [**stats** | **detail**]

Syntax Description

detail	(Optional) Shows detailed interface information, including the order in which the interface was added, the configured state, the actual state, and asymmetrical routing statistics, if enabled by the **asr-group** command. If you show all interfaces, then information about the internal interfaces for SSMs displays, if installed on the ASA 5500 series adaptive security appliance. The internal interface is not user-configurable, and the information is for debugging purposes only.
interface_name	(Optional) Identifies the interface name set with the **nameif** command.
mapped_name	(Optional) In multiple context mode, identifies the mapped name if it was assigned using the **allocate-interface** command.
physical_interface	(Optional) Identifies the interface ID, such as **gigabitethernet 0/1**. See the **interface** command for accepted values.
redundant*number*	(Optional) Identifies the redundant interface ID, such as **redundant1**.
stats	(Default) Shows interface information and statistics. This keyword is the default, so this keyword is optional.
subinterface	(Optional) Identifies an integer between 1 and 4294967293 designating a logical subinterface.
vlan *number*	(Optional) For models with a built-in switch, such as the ASA 5505 adaptive security appliance, specifies the VLAN interface.

Defaults

If you do not identify any options, this command shows basic statistics for all interfaces.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was modified to include the new interface numbering scheme, and to add the **stats** keyword for clarity, and the **detail** keyword.
7.0(4)	This command added support for the 4GE SSM interfaces.
7.2(1)	This command added support for switch interfaces.

Release	Modification
8.0(2)	This command added support for redundant interfaces. Also, the delay is added for subinterfaces. Two new counters were added: input reset drops and output reset drops.
8.2(1)	The no buffer number was changed to show the number of failures from block allocations.
8.6(1)	This command added support for the ASA 5512-X through ASA 5555-X shared management interface and the control plane interface for the software module. The management interface is displayed using the **show interface detail** command as Internal-Data0/1; the control plane interface is displayed as Internal-Control0/0.

Usage Guidelines

If an interface is shared among contexts, and you enter this command within a context, the ASA shows only statistics for the current context. When you enter this command in the system execution space for a physical interface, the ASA shows the combined statistics for all contexts.

The number of statistics shown for subinterfaces is a subset of the number of statistics shown for a physical interface.

You cannot use the interface name in the system execution space, because the **nameif** command is only available within a context. Similarly, if you mapped the interface ID to a mapped name using the **allocate-interface** command, you can only use the mapped name in a context. If you set the **visible** keyword in the **allocate-interface** command, the ASA shows the interface ID in the output of the **show interface** command.

Note The number of bytes transmitted or received in the Hardware count and the Traffic Statistics count are different.

In the hardware count, the amount is retrieved directly from hardware, and reflects the Layer 2 packet size. While in traffic statistics, it reflects the Layer 3 packet size.

The count difference is varied based upon the design of the interface card hardware.

For example, for a Fast Ethernet card, the Layer 2 count is 14 bytes greater than the traffic count, because it includes the Ethernet header. On the Gigabit Ethernet card, the Layer 2 count is 18 bytes greater than the traffic count, because it includes both the Ethernet header and the CRC.

See the “Examples” section for a description of the display output.

Examples

The following is sample output from the **show interface** command:

```
hostname# show interface
Interface GigabitEthernet0/0 "outside", is up, line protocol is up
  Hardware is i82546GB rev03, BW 1000 Mbps, DLY 1000 usec
        Auto-Duplex(Full-duplex), Auto-Speed(100 Mbps)
        MAC address 000b.fcf8.c44e, MTU 1500
        IP address 10.86.194.60, subnet mask 255.255.254.0
        1328522 packets input, 124426545 bytes, 0 no buffer
        Received 1215464 broadcasts, 0 runts, 0 giants
```

```
        0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
        9 L2 decode drops
        124606 packets output, 86803402 bytes, 0 underruns
        0 output errors, 0 collisions
        0 late collisions, 0 deferred
        0 input reset drops, 0 output reset drops
        input queue (curr/max packets): hardware (0/7)
        output queue (curr/max packets): hardware (0/13)
  Traffic Statistics for "outside":
        1328509 packets input, 99873203 bytes
        124606 packets output, 84502975 bytes
        524605 packets dropped
      1 minute input rate 0 pkts/sec,  0 bytes/sec
      1 minute output rate 0 pkts/sec,  0 bytes/sec
      1 minute drop rate, 0 pkts/sec
      5 minute input rate 0 pkts/sec,  0 bytes/sec
      5 minute output rate 0 pkts/sec,  0 bytes/sec
      5 minute drop rate, 0 pkts/sec
Interface GigabitEthernet0/1 "inside", is administratively down, line protocol is down
  Hardware is i82546GB rev03, BW 1000 Mbps, DLY 1000 usec
        Auto-Duplex, Auto-Speed
        MAC address 000b.fcf8.c44f, MTU 1500
        IP address 10.10.0.1, subnet mask 255.255.0.0
        0 packets input, 0 bytes, 0 no buffer
        Received 0 broadcasts, 0 runts, 0 giants
        0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
        0 L2 decode drops
        0 packets output, 0 bytes, 0 underruns
        0 output errors, 0 collisions
        0 late collisions, 0 deferred
        0 input reset drops, 0 output reset drops
        input queue (curr/max packets): hardware (0/0)
        output queue (curr/max packets): hardware (0/0)
  Traffic Statistics for "inside":
        0 packets input, 0 bytes
        0 packets output, 0 bytes
        0 packets dropped
      1 minute input rate 0 pkts/sec,  0 bytes/sec
      1 minute output rate 0 pkts/sec,  0 bytes/sec
      1 minute drop rate, 0 pkts/sec
      5 minute input rate 0 pkts/sec,  0 bytes/sec
      5 minute output rate 0 pkts/sec,  0 bytes/sec
      5 minute drop rate, 0 pkts/sec
Interface GigabitEthernet0/2 "faillink", is administratively down, line protocol is down
  Hardware is i82546GB rev03, BW 1000 Mbps, DLY 1000 usec
        Auto-Duplex, Auto-Speed
        Description: LAN/STATE Failover Interface
        MAC address 000b.fcf8.c450, MTU 1500
        IP address 192.168.1.1, subnet mask 255.255.255.0
        0 packets input, 0 bytes, 0 no buffer
        Received 0 broadcasts, 0 runts, 0 giants
        0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
        0 L2 decode drops
        0 packets output, 0 bytes, 0 underruns
        0 output errors, 0 collisions
        0 late collisions, 0 deferred
        0 input reset drops, 0 output reset drops
        input queue (curr/max packets): hardware (0/0)
        output queue (curr/max packets): hardware (0/0)
  Traffic Statistics for "faillink":
        0 packets input, 0 bytes
        1 packets output, 28 bytes
        0 packets dropped
      1 minute input rate 0 pkts/sec,  0 bytes/sec
```

```
      1 minute output rate 0 pkts/sec,  0 bytes/sec
      1 minute drop rate, 0 pkts/sec
      5 minute input rate 0 pkts/sec,  0 bytes/sec
      5 minute output rate 0 pkts/sec,  0 bytes/sec
      5 minute drop rate, 0 pkts/sec
Interface GigabitEthernet0/3 "", is administratively down, line protocol is down
  Hardware is i82546GB rev03, BW 1000 Mbps, DLY 1000 usec
        Auto-Duplex, Auto-Speed
        Active member of Redundant5
        MAC address 000b.fcf8.c451, MTU not set
        IP address unassigned
        0 packets input, 0 bytes, 0 no buffer
        Received 0 broadcasts, 0 runts, 0 giants
        0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
        0 L2 decode drops
        0 packets output, 0 bytes, 0 underruns
        0 output errors, 0 collisions
        0 late collisions, 0 deferred
        0 input reset drops, 0 output reset drops
        input queue (curr/max packets): hardware (0/0)
        output queue (curr/max packets): hardware (0/0)
Interface Management0/0 "", is administratively down, line protocol is down
  Hardware is i82557, BW 100 Mbps, DLY 1000 usec
        Auto-Duplex, Auto-Speed
        Available but not configured via nameif
        MAC address 000b.fcf8.c44d, MTU not set
        IP address unassigned
        0 packets input, 0 bytes, 0 no buffer
        Received 0 broadcasts, 0 runts, 0 giants
        0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
        0 L2 decode drops
        0 packets output, 0 bytes, 0 underruns
        0 output errors, 0 collisions, 0 interface resets
        0 babbles, 0 late collisions, 0 deferred
        0 lost carrier, 0 no carrier
        input queue (curr/max packets): hardware (128/128) software (0/0)
        output queue (curr/max packets): hardware (0/0) software (0/0)
Interface Redundant1 "", is down, line protocol is down
  Redundancy Information:
        Members unassigned
Interface Redundant5 "redundant", is administratively down, line protocol is down
  Hardware is i82546GB rev03, BW 1000 Mbps, DLY 1000 usec
        Auto-Duplex, Auto-Speed
        MAC address 000b.fcf8.c451, MTU 1500
        IP address 10.2.3.5, subnet mask 255.255.255.0
        0 packets input, 0 bytes, 0 no buffer
        Received 0 broadcasts, 0 runts, 0 giants
        0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
        0 L2 decode drops
        0 packets output, 0 bytes, 0 underruns
        0 output errors, 0 collisions
        0 late collisions, 0 deferred
        0 input reset drops, 0 output reset drops
        input queue (curr/max packets): hardware (0/0) software (0/0)
        output queue (curr/max packets): hardware (0/0) software (0/0)
  Traffic Statistics for "redundant":
        0 packets input, 0 bytes
        0 packets output, 0 bytes
        0 packets dropped
      1 minute input rate 0 pkts/sec,  0 bytes/sec
      1 minute output rate 0 pkts/sec,  0 bytes/sec
      1 minute drop rate, 0 pkts/sec
      5 minute input rate 0 pkts/sec,  0 bytes/sec
      5 minute output rate 0 pkts/sec,  0 bytes/sec
```

```
     5 minute drop rate, 0 pkts/sec
  Redundancy Information:
       Member GigabitEthernet0/3(Active), GigabitEthernet0/2
       Last switchover at 15:15:26 UTC Oct 24 2006
Interface Redundant5.1 "", is down, line protocol is down
       VLAN identifier none
       Available but not configured with VLAN or via nameif
```

Table 49-5 shows each field description.

Table 49-5 show interface Fields

Field	Description
Interface *ID*	The interface ID. Within a context, the ASA shows the mapped name (if configured), unless you set the **allocate-interface** command **visible** keyword.
"*interface_name*"	The interface name set with the **nameif** command. In the system execution space, this field is blank because you cannot set the name in the system. If you do not configure a name, the following message appears after the Hardware line: `Available but not configured via nameif`
is *state*	The administrative state, as follows: • up—The interface is not shut down. • administratively down—The interface is shut down with the **shutdown** command.
Line protocol is *state*	The line status, as follows: • up—A working cable is plugged into the network interface. • down—Either the cable is incorrect or not plugged into the interface connector.
VLAN identifier	For subinterfaces, the VLAN ID.
Hardware	The interface type, maximum bandwidth, delay, duplex, and speed. When the link is down, the duplex and speed show the configured values. When the link is up, these fields show the configured values with the actual settings in parentheses. The following list describes the common hardware types: • i82542 - Intel PCI Fiber Gigabit card used on PIX platforms • i82543 - Intel PCI-X Fiber Gigabit card used on PIX platforms • i82546GB - Intel PCI-X Copper Gigabit used on ASA platforms • i82547GI - Intel CSA Copper Gigabit used as backplane on ASA platforms • i82557 - Intel PCI Copper Fast Ethernet used on ASA platforms • i82559 - Intel PCI Copper Fast Ethernet used on PIX platforms • VCS7380 - Vitesse Four Port Gigabit Switch used in SSM-4GE
Media-type	(For 4GE SSM interfaces only) Shows if the interface is set as RJ-45 or SFP.

Table 49-5 show interface Fields (continued)

Field	Description

message area	A message might be displayed in some circumstances. See the following examples:
	• In the system execution space, you might see the following message:
	`Available for allocation to a context`
	• If you do not configure a name, you see the following message:
	`Available but not configured via nameif`
	• If an interface is a member of a redundant interface, you see the following message:
	`Active member of Redundant5`

MAC address	The interface MAC address.
MTU	The maximum size, in bytes, of packets allowed on this interface. If you do not set the interface name, this field shows "MTU not set."
IP address	The interface IP address set using the **ip address** command or received from a DHCP server. In the system execution space, this field shows "IP address unassigned" because you cannot set the IP address in the system.
Subnet mask	The subnet mask for the IP address.
Packets input	The number of packets received on this interface.
Bytes	The number of bytes received on this interface.
No buffer	The number of failures from block allocations.
Received:	
Broadcasts	The number of broadcasts received.
Input errors	The number of total input errors, including the types listed below. Other input-related errors can also cause the input error count to increase, and some datagrams might have more than one error; therefore, this sum might exceed the number of errors listed for the types below.
Runts	The number of packets that are discarded because they are smaller than the minimum packet size, which is 64 bytes. Runts are usually caused by collisions. They might also be caused by poor wiring and electrical interference.
Giants	The number of packets that are discarded because they exceed the maximum packet size. For example, any Ethernet packet that is greater than 1518 bytes is considered a giant.
CRC	The number of Cyclical Redundancy Check errors. When a station sends a frame, it appends a CRC to the end of the frame. This CRC is generated from an algorithm based on the data in the frame. If the frame is altered between the source and destination, the ASA notes that the CRC does not match. A high number of CRCs is usually the result of collisions or a station transmitting bad data.
Frame	The number of frame errors. Bad frames include packets with an incorrect length or bad frame checksums. This error is usually the result of collisions or a malfunctioning Ethernet device.

Table 49-5 show interface Fields (continued)

Field	Description
Overrun	The number of times that the ASA was incapable of handing received data to a hardware buffer because the input rate exceeded the ASA capability to handle the data.
Ignored	This field is not used. The value is always 0.
Abort	This field is not used. The value is always 0.
L2 decode drops	The number of packets dropped because the name is not configured (**nameif** command) or a frame with an invalid VLAN id is received.
Packets output	The number of packets sent on this interface.
Bytes	The number of bytes sent on this interface.
Underruns	The number of times that the transmitter ran faster than the ASA could handle.
Output Errors	The number of frames not transmitted because the configured maximum number of collisions was exceeded. This counter should only increment during heavy network traffic.
Collisions	The number of messages retransmitted due to an Ethernet collision (single and multiple collisions). This usually occurs on an overextended LAN (Ethernet or transceiver cable too long, more than two repeaters between stations, or too many cascaded multiport transceivers). A packet that collides is counted only once by the output packets.
Interface resets	The number of times an interface has been reset. If an interface is unable to transmit for three seconds, the ASA resets the interface to restart transmission. During this interval, connection state is maintained. An interface reset can also happen when an interface is looped back or shut down.
Babbles	Unused. ("babble" means that the transmitter has been on the interface longer than the time taken to transmit the largest frame.)
Late collisions	The number of frames that were not transmitted because a collision occurred outside the normal collision window. A late collision is a collision that is detected late in the transmission of the packet. Normally, these should never happen. When two Ethernet hosts try to talk at once, they should collide early in the packet and both back off, or the second host should see that the first one is talking and wait. If you get a late collision, a device is jumping in and trying to send the packet on the Ethernet while the ASA is partly finished sending the packet. The ASA does not resend the packet, because it may have freed the buffers that held the first part of the packet. This is not a real problem because networking protocols are designed to cope with collisions by resending packets. However, late collisions indicate a problem exists in your network. Common problems are large repeated networks and Ethernet networks running beyond the specification.
Deferred	The number of frames that were deferred before transmission due to activity on the link.
input reset drops	Counts the number of packets dropped in the RX ring when a reset occurs.
output reset drops	Counts the number of packets dropped in the TX ring when a reset occurs.
Rate limit drops	(For 4GE SSM interfaces only) The number of packets dropped if you configured the interface at non-Gigabit speeds and attempted to transmit more than 10 Mbps or 100 Mbps, depending on configuration..

Table 49-5 show interface Fields (continued)

Field	Description
Lost carrier	The number of times the carrier signal was lost during transmission.
No carrier	Unused.
Input queue (curr/max packets):	The number of packets in the input queue, the current and the maximum.
Hardware	The number of packets in the hardware queue.
Software	The number of packets in the software queue. Not available for Gigabit Ethernet interfaces.
Output queue (curr/max packets):	The number of packets in the output queue, the current and the maximum.
Hardware	The number of packets in the hardware queue.
Software	The number of packets in the software queue.
input queue (blocks free curr/low)	The curr/low entry indicates the number of current and all-time-lowest available slots on the interface's Receive (input) descriptor ring. These are updated by the main CPU, so the all-time-lowest (until the interface statistics are cleared or the device is reloaded) watermarks are not highly accurate.
output queue (blocks free curr/low)	The curr/low entry indicates the number of current and all-time-lowest available slots on the interface's Transmit (output) descriptor rings. These are updated by the main CPU, so the all-time-lowest (until the interface statistics are cleared or the device is reloaded) watermarks are not highly accurate.
Traffic Statistics:	The number of packets received, transmitted, or dropped.
Packets input	The number of packets received and the number of bytes.
Packets output	The number of packets transmitted and the number of bytes.
Packets dropped	The number of packets dropped. Typically this counter increments for packets dropped on the accelerated security path (ASP), for example, if a packet is dropped due to an access list deny. See the **show asp drop** command for reasons for potential drops on an interface.
1 minute input rate	The number of packets received in packets/sec and bytes/sec over the last minute.
1 minute output rate	The number of packets transmitted in packets/sec and bytes/sec over the last minute.
1 minute drop rate	The number of packets dropped in packets/sec over the last minute.
5 minute input rate	The number of packets received in packets/sec and bytes/sec over the last 5 minutes.
5 minute output rate	The number of packets transmitted in packets/sec and bytes/sec over the last 5 minutes.
5 minute drop rate	The number of packets dropped in packets/sec over the last 5 minutes.

Table 49-5 show interface Fields (continued)

Field	Description
Redundancy Information:	For redundant interfaces, shows the member physical interfaces. The active interface has "(Active)" after the interface ID. If you have not yet assigned members, you see the following output: `Members unassigned`
Last switchover	For redundant interfaces, shows the last time the active interface failed over to the standby interface.

The following is sample output from the **show interface** command on the ASA 5505, which includes switch ports:

```
hostname# show interface
Interface Vlan1 "inside", is up, line protocol is up
  Hardware is EtherSVI, BW 100 Mbps, DLY 100 usec
        MAC address 00d0.2bff.449f, MTU 1500
        IP address 1.1.1.1, subnet mask 255.0.0.0
  Traffic Statistics for "inside":
        0 packets input, 0 bytes
        0 packets output, 0 bytes
        0 packets dropped
      1 minute input rate 0 pkts/sec,  0 bytes/sec
      1 minute output rate 0 pkts/sec,  0 bytes/sec
      1 minute drop rate, 0 pkts/sec
      5 minute input rate 0 pkts/sec,  0 bytes/sec
      5 minute output rate 0 pkts/sec,  0 bytes/sec
      5 minute drop rate, 0 pkts/sec

    Interface Ethernet0/0 "", is up, line protocol is up
      Hardware is 88E6095, BW 100 Mbps, DLY 1000 usec
            Auto-Duplex(Half-duplex), Auto-Speed(100 Mbps)
            Available but not configured via nameif
            MAC address 00d0.2bfd.6ec5, MTU not set
            IP address unassigned
            407 packets input, 53587 bytes, 0 no buffer
            Received 103 broadcasts, 0 runts, 0 giants
            0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
            0 L2 decode drops
            43 switch ingress policy drops
            0 packets output, 0 bytes, 0 underruns
            0 output errors, 0 collisions, 0 interface resets
            0 babbles, 0 late collisions, 0 deferred
            0 lost carrier, 0 no carrier
            0 rate limit drops
            0 switch egress policy drops
```

Table 49-7 shows each field description for the **show interface** command for switch interfaces, such as those for the ASA 5505 adaptive security appliance. See Table 49-6 for fields that are also shown for the **show interface** command.

Table 49-6 show interface for Switch Interfaces Fields

Field	Description
switch ingress policy drops	This drop is usually seen when a port is not configured correctly. This drop is incremented when a packet cannot be successfully forwarded within switch ports as a result of the default or user configured switch port settings. The following configurations are the likely reasons for this drop: • The **nameif** command was not configured on the VLAN interface. **Note** For interfaces in the same VLAN, even if the **nameif** command was not configured, switching within the VLAN is successful, and this counter does not increment. • The VLAN is shut down. • An access port received an 802.1Q-tagged packet. • A trunk port received a tag that is not allowed or an untagged packet. • The ASA is connected to another Cisco device that has Ethernet keepalives. For example, Cisco IOS software uses Ethernet loopback packets to ensure interface health. This packet is not intended to be received by any other device; the health is ensured just by being able to send the packet. These types of packets are dropped at the switch port, and the counter increments.
switch egress policy drops	Not currently in use.

The following is sample output from the **show interface detail** command. The following example shows detailed interface statistics for all interfaces, including the internal interfaces (if present for your platform) and asymmetrical routing statistics, if enabled by the **asr-group** command:

```
hostname# show interface detail
Interface GigabitEthernet0/0 "outside", is up, line protocol is up
  Hardware is i82546GB rev03, BW 1000 Mbps, DLY 1000 usec
        Auto-Duplex(Full-duplex), Auto-Speed(100 Mbps)
        MAC address 000b.fcf8.c44e, MTU 1500
        IP address 10.86.194.60, subnet mask 255.255.254.0
        1330214 packets input, 124580214 bytes, 0 no buffer
        Received 1216917 broadcasts, 0 runts, 0 giants
        0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
        9 L2 decode drops
        124863 packets output, 86956597 bytes, 0 underruns
        0 output errors, 0 collisions
        0 late collisions, 0 deferred
        input queue (curr/max packets): hardware (0/7)
        output queue (curr/max packets): hardware (0/13)
  Traffic Statistics for "outside":
        1330201 packets input, 99995120 bytes
        124863 packets output, 84651382 bytes
        525233 packets dropped
  Control Point Interface States:
        Interface number is 1
        Interface config status is active
        Interface state is active
```

```
Interface Internal-Data0/0 "", is up, line protocol is up
  Hardware is i82547GI rev00, BW 1000 Mbps, DLY 1000 usec
        (Full-duplex), (1000 Mbps)
        MAC address 0000.0001.0002, MTU not set
        IP address unassigned
        6 packets input, 1094 bytes, 0 no buffer
        Received 6 broadcasts, 0 runts, 0 giants
        0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
        0 L2 decode drops, 0 demux drops
        0 packets output, 0 bytes, 0 underruns
        0 output errors, 0 collisions
        0 late collisions, 0 deferred
        input queue (curr/max packets): hardware (0/2) software (0/0)
        output queue (curr/max packets): hardware (0/0) software (0/0)
   Control Point Interface States:
        Interface number is unassigned
...
```

Table 49-7 shows each field description for the **show interface detail** command. See Table 49-7 for fields that are also shown for the **show interface** command.

Table 49-7 show interface detail Fields

Field	Description
Demux drops	(On Internal-Data interface only) The number of packets dropped because the ASA was unable to demultiplex packets from SSM interfaces. SSM interfaces communicate with the native interfaces across the backplane, and packets from all SSM interfaces are multiplexed on the backplane.
Control Point Interface States:	
Interface number	A number used for debugging that indicates in what order this interface was created, starting with 0.
Interface config status	The administrative state, as follows: • active—The interface is not shut down. • not active—The interface is shut down with the **shutdown** command.
Interface state	The actual state of the interface. In most cases, this state matches the config status above. If you configure high availability, it is possible there can be a mismatch because the ASA brings the interfaces up or down as needed.
Asymmetrical Routing Statistics:	
Received X1 packets	Number of ASR packets received on this interface.
Transmitted X2 packets	Number of ASR packets sent on this interfaces.
Dropped X3 packets	Number of ASR packets dropped on this interface. The packets might be dropped if the interface is down when trying to forward the packet.

The following is sample output from the **show interface detail** command on the ASA 5512-X through ASA 5555-X, which shows combined statistics for the Management 0/0 interface (shown as "Internal-Data0/1") for both the ASA and the software module. The output also shows the Internal-Control0/0 interface, which is used for control traffic between the software module and the ASA.

```
Interface Internal-Data0/1 "ipsmgmt", is down, line protocol is up
  Hardware is , BW Unknown Speed-Capability, DLY 1000 usec
        (Full-duplex), (1000 Mbps)
        Input flow control is unsupported, output flow control is unsupported
        MAC address 0100.0100.0000, MTU not set
        IP address 127.0.1.1, subnet mask 255.255.0.0
        0 packets input, 0 bytes, 0 no buffer
        Received 0 broadcasts, 0 runts, 0 giants
        0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
        0 pause input, 0 resume input
        0 L2 decode drops
        182 packets output, 9992 bytes, 0 underruns
        0 pause output, 0 resume output
        0 output errors, 0 collisions, 0 interface resets
        0 late collisions, 0 deferred
        0 input reset drops, 0 output reset drops
        input queue (blocks free curr/low): hardware (0/0)
        output queue (blocks free curr/low): hardware (0/0)
  Traffic Statistics for "ipsmgmt":
        0 packets input, 0 bytes
        0 packets output, 0 bytes
        0 packets dropped
      1 minute input rate 0 pkts/sec,  0 bytes/sec
      1 minute output rate 0 pkts/sec,  0 bytes/sec
      1 minute drop rate, 0 pkts/sec
      5 minute input rate 0 pkts/sec,  0 bytes/sec
      5 minute output rate 0 pkts/sec,  0 bytes/sec
      5 minute drop rate, 0 pkts/sec
  Control Point Interface States:
        Interface number is 11
        Interface config status is active
        Interface state is active

Interface Internal-Control0/0 "cplane", is down, line protocol is up
  Hardware is , BW Unknown Speed-Capability, DLY 1000 usec
        (Full-duplex), (1000 Mbps)
        Input flow control is unsupported, output flow control is unsupported
        MAC address 0100.0100.0000, MTU not set
        IP address 127.0.1.1, subnet mask 255.255.0.0
        0 packets input, 0 bytes, 0 no buffer
        Received 0 broadcasts, 0 runts, 0 giants
        0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
        0 pause input, 0 resume input
        0 L2 decode drops
        182 packets output, 9992 bytes, 0 underruns
        0 pause output, 0 resume output
        0 output errors, 0 collisions, 0 interface resets
        0 late collisions, 0 deferred
        0 input reset drops, 0 output reset drops
        input queue (blocks free curr/low): hardware (0/0)
        output queue (blocks free curr/low): hardware (0/0)
  Traffic Statistics for "cplane":
        0 packets input, 0 bytes
        0 packets output, 0 bytes
        0 packets dropped
      1 minute input rate 0 pkts/sec,  0 bytes/sec
      1 minute output rate 0 pkts/sec,  0 bytes/sec
```

```
    1 minute drop rate, 0 pkts/sec
    5 minute input rate 0 pkts/sec,  0 bytes/sec
    5 minute output rate 0 pkts/sec,  0 bytes/sec
    5 minute drop rate, 0 pkts/sec
Control Point Interface States:
      Interface number is 11
      Interface config status is active
      Interface state is active
```

Related Commands

Command	Description
allocate-interface	Assigns interfaces and subinterfaces to a security context.
clear interface	Clears counters for the **show interface** command.
delay	Changes the delay metric for an interface.
interface	Configures an interface and enters interface configuration mode.
nameif	Sets the interface name.
show interface ip brief	Shows the interface IP address and status.

show interface ip brief

To view interface IP addresses and status, use the **show interface ip brief** command in privileged EXEC mode.

show interface [*physical_interface*[**.***subinterface*] | *mapped_name* | *interface_name* | **vlan** *number*] **ip brief**

Syntax Description

interface_name	(Optional) Identifies the interface name set with the **nameif** command.
mapped_name	(Optional) In multiple context mode, identifies the mapped name if it was assigned using the **allocate-interface** command.
physical_interface	(Optional) Identifies the interface ID, such as **gigabitethernet0/1**. See the **interface** command for accepted values.
subinterface	(Optional) Identifies an integer between 1 and 4294967293 designating a logical subinterface.
vlan *number*	(Optional) For models with a built-in switch, such as the ASA 5505 adaptive security appliance, specifies the VLAN interface.

Defaults

If you do not specify an interface, the ASA shows all interfaces.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent[1]	Single	Context	System
Privileged EXEC	•	•	•	•	—

1. Available for the Management 0/0 interface or subinterface only.

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	This command added support for VLAN interfaces, and for the Management 0/0 interface or subinterface in transparent mode.

Usage Guidelines

In multiple context mode, if you mapped the interface ID in the **allocate-interface** command, you can only specify the mapped name or the interface name in a context.

See the "Examples" section for a description of the display output.

Examples

The following is sample output from the **show ip brief** command:

```
hostname# show interface ip brief
```

```
Interface                  IP-Address      OK? Method  Status                Protocol
Control0/0                 127.0.1.1       YES CONFIG  up                    up
GigabitEthernet0/0         209.165.200.226 YES CONFIG  up                    up
GigabitEthernet0/1         unassigned      YES unset   administratively down down
GigabitEthernet0/2         10.1.1.50       YES manual  administratively down down
GigabitEthernet0/3         192.168.2.6     YES DHCP    administratively down down
Management0/0              209.165.201.3   YES CONFIG  up
```

Table 49-7 shows each field description.

Table 49-8 show interface ip brief Fields

Field	Description
Interface	The interface ID or, in multiple context mode, the mapped name if you configured it using the **allocate-interface** command. If you show all interfaces, then information about the internal interface for the AIP SSM displays, if installed on the ASA. The internal interface is not user-configurable, and the information is for debugging purposes only.
IP-Address	The interface IP address.
OK?	This column is not currently used, and always shows “Yes.”
Method	The method by which the interface received the IP address. Values include the following: • unset—No IP address configured. • manual—Configured the running configuration. • CONFIG—Loaded from the startup configuration. • DHCP—Received from a DHCP server.
Status	The administrative state, as follows: • up—The interface is not shut down. • administratively down—The interface is shut down with the **shutdown** command.
Protocol	The line status, as follows: • up—A working cable is plugged into the network interface. • down—Either the cable is incorrect or not plugged into the interface connector.

Related Commands

Command	Description
allocate-interface	Assigns interfaces and subinterfaces to a security context.
interface	Configures an interface and enters interface configuration mode.
ip address	Sets the IP address for the interface or sets the management IP address for a transparent firewall.
nameif	Sets the interface name.
show interface	Displays the runtime status and statistics of interfaces.

show inventory

To display information about all of the Cisco products installed in the networking device that are assigned a product identifier (PID), version identifier (VID), and serial number (SN), use the **show inventory** command in user EXEC or privileged EXEC mode.

show inventory *mod_id* [**slot**]

Syntax Description

mod_id	(Optional) Specifies the module ID.
slot	(Optional) Specifies the SSM slot number (the ASA is slot 0).

Defaults

If you do not specify a slot to show inventory for an item, the inventory information of all SSMs (including the power supply) is displayed.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	—	—	•
User EXEC	•	•	—	—	•

Command History

Release	Modification
7.0(1)	Minor editorial changes.
8.4(2)	The output for an SSP was added. In addition, support for a dual SSP installation was added.
8.6(1)	The output for the ASA 5512-X, 5515-X, 5525-X, 5545-X, and 5555-X (the chassis, redundant power supplies, and I/O expansion card) was added.
9.1(1)	The output for the ASA CX module was added.

Usage Guidelines

The **show inventory** command retrieves and displays inventory information about each Cisco product in the form of a UDI, which is a combination of three separate data elements: the product identifier (PID), the version identifier (VID), and the serial number (SN).

The PID is the name by which the product can be ordered; it has been historically called the “Product Name” or “Part Number.” This is the identifier that you use to order an exact replacement part.

The VID is the version of the product. Whenever a product has been revised, the VID is incremented according to a rigorous process derived from Telcordia GR-209-CORE, an industry guideline that governs product change notices.

The SN is the vendor-unique serialization of the product. Each manufactured product has a unique serial number assigned at the factory, which cannot be changed in the field. The serial number is the means by which to identify an individual, specific instance of a product.

The UDI refers to each product as an entity. Some entities, such as a chassis, have subentities like slots. Each entity appears on a separate line in a logically ordered presentation that is arranged hierarchically by Cisco entities.

Use the **show inventory** command without options to display a list of Cisco entities installed in the networking device that are assigned a PID.

If a Cisco entity is not assigned a PID, that entity is not retrieved or displayed.

Note When two SSPs are installed in the same chassis, the number of the module indicates the physical location of the module in the chassis. The chassis master is always the SSP installed in slot 0. Only those sensors with which the SSP is associated are displayed in the output.

The term *module* in the output is equivalent to physical slot. In the description of the SSP itself, the output includes module: 0 when it is installed in physical slot 0, and module: 1 otherwise. When the target SSP is the chassis master, the **show inventory** command output includes the power supplies and/or cooling fans. Otherwise, these components are omitted.

Examples

The following is sample output from the **show inventory** command without any keywords or arguments. This sample output displays a list of Cisco entities installed in an ASA that are each assigned a PID.

```
hostname# show inventory
Name:"Chassis", DESCR:"ASA 5540 Adaptive Security Appliance"
PID:ASA5540           , VID:V01 , SN:P3000000998

Name:"slot 1", DESCR:"ASA 5500 Series Security Services Module-20"
PID:ASA-SSM-20        , VID:V01 , SN:P0000000999

Name:"power supply", DESCR:"ASA 5500 Series 180W AC Power Supply"
PID:ASA-180W-PWR-AC   , VID:V01 , SN:123456789AB

hostname# show inventory 0
Name:"Chassis", DESCR:"ASA 5540 Adaptive Security Appliance"
PID:ASA5540           , VID:V01 , SN:P3000000998

hostname# show inventory 1
Name:"slot 1", DESCR:"ASA 5500 Series Security Services Module-20"
PID:ASA-SSM-20        , VID:V01 , SN:P0000000999
```

The following example shows the output of the **show inventory** command on a chassis master for a dual SSP installation:

```
hostname(config)# show inventory
Name: "module 0", DESCR: "ASA 5585-X Security Services Processor-40 w 6GE,4 SFP+"
PID: ASA5585-SSP-40    , VID: V01     , SN: JAF1436ACLJ

Name: "Chassis", DESCR: "ASA 5585-X"
PID: ASA5585           , VID: V01     , SN: 123456789AB

Name: "fan", DESCR: "ASA 5585-X Fan Module"
PID: ASA5585-FAN       , VID: V01     , SN: POG1434000G

Name: "power supply 0", DESCR: "ASA 5585-X AC Power Supply"
PID: ASA5585-PWR-AC    , VID: V01     , SN: POG1434002K
```

The following example shows the output of the **show inventory** command for an ASA CX module with a supported hard disk and a known model number:

```
hostname(config)# show inventory

Name: "Chassis", DESCR: "ASA 5555 Adaptive Security Appliance"
PID: ASA5555           , VID: V00     , SN: FCH1504V0D1

Name: "module 1", DESCR: "ASA 5545-X/5555-X Interface Card 6-port 10/100/1000, RJ-45"
PID: ASA-IC-6GE-CU-C   , VID: N/A     , SN: N/A

Name: "power supply 0", DESCR: ""
PID:                   , VID: N/A     , SN:

Name: "power supply 1", DESCR: "ASA 5545-X/5555-X AC Power Supply"
PID: ASA-PWR-AC        , VID: N/A     , SN: 1341CH

Name: "Storage Device 1", DESCR: "Micron 128 GB SSD MLC, Model Number: C400-MTFDDAC128MAM"
PID: N/A               , VID: N/A     , SN: 1143034653F2
```

Table 49-9 describes the fields shown in the display.

Table 49-9 Field Descriptions for show inventory

Field	Description
Name	Physical name (text string) assigned to the Cisco entity. For example, console, SSP, or a simple component number (port or module number), such as “1,” depending on the physical component naming syntax of the device. Equivalent to the entPhysicalName MIB variable in RFC 2737.
DESCR	Physical description of the Cisco entity that characterizes the object. Equivalent to the entPhysicalDesc MIB variable in RFC 2737.
PID	Entity product identifier. Equivalent to the entPhysicalModelName MIB variable in RFC 2737.
VID	Entity version identifier. Equivalent to the entPhysicalHardwareRev MIB variable in RFC 2737.
SN	Entity serial number. Equivalent to the entPhysicalSerialNum MIB variable in RFC 2737.

Related Commands

Command	Description
show diag	Displays diagnostic information about the controller, interface processor, and port adapters for a networking device.
show tech-support	Displays general information about the router when it reports a problem.

show ip address

To view interface IP addresses or, for transparent mode, the management IP address, use the **show ip address** command in privileged EXEC mode.

show ip address [*physical_interface*[**.***subinterface*] | *mapped_name* | *interface_name* | **vlan** *number*]

Syntax Description

interface_name	(Optional) Identifies the interface name set with the **nameif** command.
mapped_name	(Optional) In multiple context mode, identifies the mapped name if it was assigned using the **allocate-interface** command.
physical_interface	(Optional) Identifies the interface ID, such as **gigabitethernet0/1**. See the **interface** command for accepted values.
subinterface	(Optional) Identifies an integer between 1 and 4294967293 designating a logical subinterface.
vlan *number*	(Optional) For models with a built-in switch, such as the ASA 5505 adaptive security appliance, specifies the VLAN interface.

Defaults

If you do not specify an interface, the ASA shows all interface IP addresses.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command added support for VLAN interfaces.

Usage Guidelines

This command shows the primary IP addresses (called “System” in the display) for when you configure high availability as well as the current IP addresses. If the unit is active, then the system and current IP addresses match. If the unit is standby, then the current IP addresses show the standby addresses.

Examples

The following is sample output from the **show ip address** command:

```
hostname# show ip address
System IP Addresses:
Interface               Name         IP address      Subnet mask       Method
GigabitEthernet0/0      mgmt         10.7.12.100     255.255.255.0     CONFIG
GigabitEthernet0/1      inside       10.1.1.100      255.255.255.0     CONFIG
GigabitEthernet0/2.40   outside      209.165.201.2   255.255.255.224   DHCP
```

```
GigabitEthernet0/3       dmz          209.165.200.225 255.255.255.224   manual
Current IP Addresses:
Interface                Name         IP address      Subnet mask       Method
GigabitEthernet0/0       mgmt         10.7.12.100     255.255.255.0     CONFIG
GigabitEthernet0/1       inside       10.1.1.100      255.255.255.0     CONFIG
GigabitEthernet0/2.40    outside      209.165.201.2   255.255.255.224   DHCP
GigabitEthernet0/3       dmz          209.165.200.225 255.255.255.224   manual
```

Table 49-7 shows each field description.

Table 49-10 show ip address Fields

Field	Description
Interface	The interface ID or, in multiple context mode, the mapped name if you configured it using the **allocate-interface** command.
Name	The interface name set with the **nameif** command.
IP address	The interface IP address.
Subnet mask	The IP address subnet mask.
Method	The method by which the interface received the IP address. Values include the following: • unset—No IP address configured. • manual—Configured the running configuration. • CONFIG—Loaded from the startup configuration. • DHCP—Received from a DHCP server.

Related Commands

Command	Description
allocate-interface	Assigns interfaces and subinterfaces to a security context.
interface	Configures an interface and enters interface configuration mode.
nameif	Sets the interface name.
show interface	Displays the runtime status and statistics of interfaces.
show interface ip brief	Shows the interface IP address and status.

show ip address dhcp

To view detailed information about the DHCP lease or server for an interface, use the **show ip address dhcp** command in privileged EXEC mode.

show ip address {*physical_interface*[**.***subinterface*] | *mapped_name* | *interface_name*} **dhcp** {**lease** | **server**}

show ip address {*physical_interface*[**.***subinterface*] | *mapped_name* | *interface_name*} **dhcp lease** {**proxy** | **server**} {**summary**}

Syntax Description

interface_name	Identifies the interface name set with the **nameif** command.
lease	Shows information about the DHCP lease.
mapped_name	In multiple context mode, identifies the mapped name if it was assigned using the **allocate-interface** command.
physical_interface	Identifies the interface ID, such as **gigabitethernet0/1**. See the **interface** command for accepted values.
proxy	Shows proxy entries in the IPL table.
server	Shows server entries in the IPL table.
subinterface	Identifies an integer between 1 and 4294967293 designating a logical subinterface.
summary	Shows summary for the entry.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent[1]	Single	Context	System
Privileged EXEC	•	—	•	•	—

1. Available for the Management 0/0 interface or subinterface only.

Command History

Release	Modification
7.0(1)	This command was changed to include the **lease** and **server** keywords to accommodate the new server functionality.
7.2(1)	This command added support for VLAN interfaces, and for the Management 0/0 interface or subinterface in transparent mode.
9.1(4)	This command was changed to include the **proxy** and **summary** keywords to accommodate the new server functionality.

Usage Guidelines

See the "Examples" section for a description of the display output.

Examples

The following is sample output from the **show ip address dhcp lease** command:

```
hostname# show ip address outside dhcp lease
Temp IP Addr:209.165.201.57 for peer on interface:outside
Temp sub net mask:255.255.255.224
   DHCP Lease server:209.165.200.225, state:3 Bound
   DHCP Transaction id:0x4123
   Lease:259200 secs, Renewal:129600 secs, Rebind:226800 secs
   Temp default-gateway addr:209.165.201.1
   Temp ip static route0: dest 10.9.0.0 router 10.7.12.255
   Next timer fires after:111797 secs
   Retry count:0, Client-ID:cisco-0000.0000.0000-outside
   Proxy: TRUE  Proxy Network: 10.1.1.1
   Hostname: device1
```

Table 49-7 shows each field description.

Table 49-11 show ip address dhcp lease Fields

Field	Description
Temp IP Addr	The IP address assigned to the interface.
Temp sub net mask	The subnet mask assigned to the interface.
DHCP Lease server	The DHCP server address.
state	The state of the DHCP lease, as follows: • Initial—The initialization state, where the ASA begins the process of acquiring a lease. This state is also shown when a lease ends or when a lease negotiation fails. • Selecting—The ASA is waiting to receive DHCPOFFER messages from one or more DHCP servers, so it can choose one. • Requesting—The ASA is waiting to hear back from the server to which it sent its request. • Purging—The ASA is removing the lease because the client has released the IP address or there was some other error. • Bound—The ASA has a valid lease and is operating normally. • Renewing—The ASA is trying to renew the lease. It regularly sends DHCPREQUEST messages to the current DHCP server, and waits for a reply. • Rebinding—The ASA failed to renew the lease with the original server, and now sends DHCPREQUEST messages until it gets a reply from any server or the lease ends. • Holddown—The ASA started the process to remove the lease. • Releasing—The ASA sends release messages to the server indicating that the IP address is no longer needed.
DHCP transaction id	A random number chosen by the client, used by the client and server to associate the request messages.

Table 49-11 show ip address dhcp lease Fields (continued)

Field	Description
Lease	The length of time, specified by the DHCP server, that the interface can use this IP address.
Renewal	The length of time until the interface automatically attempts to renew this lease.
Rebind	The length of time until the ASA attempts to rebind to a DHCP server. Rebinding occurs if the ASA cannot communicate with the original DHCP server, and 87.5 percent of the lease time has expired. The ASA then attempts to contact any available DHCP server by broadcasting DHCP requests.
Temp default-gateway addr	The default gateway address supplied by the DHCP server.
Temp ip static route0	The default static route.
Next timer fires after	The number of seconds until the internal timer triggers.
Retry count	If the ASA is attempting to establish a lease, this field shows the number of times the ASA tried sending a DHCP message. For example, if the ASA is in the Selecting state, this value shows the number of times the ASA sent discover messages. If the ASA is in the Requesting state, this value shows the number of times the ASA sent request messages.
Client-ID	The client ID used in all communication with the server.
Proxy	Specifies if this interface is a proxy DHCP client for VPN clients, True or False.
Proxy Network	The requested network.
Hostname	The client hostname.

The following is sample output from the **show ip address dhcp server** command:

```
hostname# show ip address outside dhcp server

   DHCP server: ANY (255.255.255.255)
    Leases:   0
    Offers:   0      Requests: 0     Acks: 0     Naks: 0
    Declines: 0      Releases: 0     Bad:  0

   DHCP server: 40.7.12.6
    Leases:   1
    Offers:   1      Requests: 17     Acks: 17     Naks: 0
    Declines: 0      Releases: 0     Bad:  0
    DNS0:   171.69.161.23,   DNS1:  171.69.161.24
    WINS0:  172.69.161.23,   WINS1: 172.69.161.23
    Subnet: 255.255.0.0   DNS Domain: cisco.com
```

Table 49-12 shows each field description.

Table 49-12 show ip address dhcp server Fields

Field	Description
DHCP server	The DHCP server address from which this interface obtained a lease. The top entry (“ANY”) is the default server and is always present.
Leases	The number of leases obtained from the server. For an interface, the number of leases is typically 1. If the server is providing address for an interface that is running proxy for VPN, there will be several leases.
Offers	The number of offers from the server.
Requests	The number of requests sent to the server.
Acks	The number of acknowledgements received from the server.
Naks	The number of negative acknowledgements received from the server.
Declines	The number of declines received from the server.
Releases	The number of releases sent to the server.
Bad	The number of bad packets received from the server.
DNS0	The primary DNS server address obtained from the DHCP server.
DNS1	The secondary DNS server address obtained from the DHCP server.
WINS0	The primary WINS server address obtained from the DHCP server.
WINS1	The secondary WINS server address obtained from the DHCP server.
Subnet	The subnet address obtained from the DHCP server.
DNS Domain	The domain obtained from the DHCP server.

Related Commands

Command	Description
interface	Configures an interface and enters interface configuration mode.
ip address dhcp	Sets the interface to obtain an IP address from a DHCP server.
nameif	Sets the interface name.
show interface ip brief	Shows the interface IP address and status.
show ip address	Displays the IP addresses of interfaces.

show ip address pppoe

To view detailed information about the PPPoE connection, use the **show ip address pppoe** command in privileged EXEC mode.

show ip address {*physical_interface*[**.***subinterface*] | *mapped_name* | *interface_name* | **vlan** *number*} **pppoe**

Syntax Description

interface_name	Identifies the interface name set with the **nameif** command.
mapped_name	In multiple context mode, identifies the mapped name if it was assigned using the **allocate-interface** command.
physical_interface	Identifies the interface ID, such as **gigabitethernet0/1**. See the **interface** command for accepted values.
subinterface	Identifies an integer between 1 and 4294967293 designating a logical subinterface.
vlan *number*	(Optional) For models with a built-in switch, such as the ASA 5505 adaptive security appliance, specifies the VLAN interface.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent[1]	Single	Context	System
Privileged EXEC	•	•	•	•	—

1. Available for the Management 0/0 interface or subinterface only.

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

See the “Examples” section for a description of the display output.

Examples

The following is sample output from the **show ip address pppoe** command:

```
hostname# show ip address outside pppoe
```

Related Commands

Command	Description
interface	Configures an interface and enters interface configuration mode.
ip address ppoe	Sets the interface to obtain an IP address from a PPPoE server.
nameif	Sets the interface name.
show interface ip brief	Shows the interface IP address and status.
show ip address	Displays the IP addresses of interfaces.

show ip audit count

To show the number of signature matches when you apply an audit policy to an interface, use the **show ip audit count** command in privileged EXEC mode.

show ip audit count [**global** | **interface** *interface_name*]

Syntax Description

global	(Default) Shows the number of matches for all interfaces.
interface *interface_name*	(Optional) Shows the number of matches for the specified interface.

Defaults

If you do not specify a keyword, this command shows the matches for all interfaces (**global**).

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To create an audit policy, use the **ip audit name** command, and to apply the policy, use the **ip audit interface** command.

Examples

The following is sample output from the **show ip audit count** command:

```
hostname# show ip audit count
IP AUDIT GLOBAL COUNTERS

1000 I Bad IP Options List        0
1001 I Record Packet Route        0
1002 I Timestamp                  0
1003 I Provide s,c,h,tcc          0
1004 I Loose Source Route         0
1005 I SATNET ID                  0
1006 I Strict Source Route        0
1100 A IP Fragment Attack         0
1102 A Impossible IP Packet       0
1103 A IP Teardrop                0
2000 I ICMP Echo Reply            0
2001 I ICMP Unreachable           0
2002 I ICMP Source Quench         0
2003 I ICMP Redirect              0
```

```
2004 I ICMP Echo Request          10
2005 I ICMP Time Exceed           0
2006 I ICMP Parameter Problem     0
2007 I ICMP Time Request          0
2008 I ICMP Time Reply            0
2009 I ICMP Info Request          0
2010 I ICMP Info Reply            0
2011 I ICMP Address Mask Request  0
2012 I ICMP Address Mask Reply    0
2150 A Fragmented ICMP            0
2151 A Large ICMP                 0
2154 A Ping of Death              0
3040 A TCP No Flags               0
3041 A TCP SYN & FIN Flags Only   0
3042 A TCP FIN Flag Only          0
3153 A FTP Improper Address       0
3154 A FTP Improper Port          0
4050 A Bomb                       0
4051 A Snork                      0
4052 A Chargen                    0
6050 I DNS Host Info              0
6051 I DNS Zone Xfer              0
6052 I DNS Zone Xfer High Port    0
6053 I DNS All Records            0
6100 I RPC Port Registration      0
6101 I RPC Port Unregistration    0
6102 I RPC Dump                   0
6103 A Proxied RPC                0
6150 I ypserv Portmap Request     0
6151 I ypbind Portmap Request     0
6152 I yppasswdd Portmap Request  0
6153 I ypupdated Portmap Request  0
6154 I ypxfrd Portmap Request     0
6155 I mountd Portmap Request     0
6175 I rexd Portmap Request       0
6180 I rexd Attempt               0
6190 A statd Buffer Overflow      0

IP AUDIT INTERFACE COUNTERS: inside
...
```

Related Commands

Command	Description
clear ip audit count	Clears the count of signature matches for an audit policy.
ip audit interface	Assigns an audit policy to an interface.
ip audit name	Creates a named audit policy that identifies the actions to take when a packet matches an attack signature or an informational signature.
show running-config ip audit attack	Shows the configuration for the **ip audit attack** command.

show ip verify statistics

To show the number of packets dropped because of the Unicast RPF feature, use the **show ip verify statistics** command in privileged EXEC mode. Use the **ip verify reverse-path** command to enable Unicast RPF.

show ip verify statistics [interface *interface_name*]

Syntax Description

interface *interface_name*	(Optional) Shows statistics for the specified interface.

Defaults

This command shows statistics for all interfaces.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show ip verify statistics** command:

```
hostname# show ip verify statistics
interface outside: 2 unicast rpf drops
interface inside: 1 unicast rpf drops
interface intf2: 3 unicast rpf drops
```

Related Commands

Command	Description
clear configure ip verify reverse-path	Clears the **ip verify reverse-path** configuration.
clear ip verify statistics	Clears the Unicast RPF statistics.
ip verify reverse-path	Enables the Unicast Reverse Path Forwarding feature to prevent IP spoofing.
show running-config ip verify reverse-path	Shows the **ip verify reverse-path** configuration.

show ips

To show all available IPS virtual sensors that are configured on the AIP SSM, use the **show ips** command in privileged EXEC mode.

show ips [**detail**]

Syntax Description

detail	(Optional) Shows the sensor ID number as well as the name.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

In multiple context mode, this command shows all virtual sensors when entered in the system execution space, but only shows the virtual sensors assigned to the context in the context execution space. See the **allocate-ips** command to assign virtual sensors to contexts.

Virtual sensors are available in IPS Version 6.0 and above.

Examples

The following is sample output from the **show ips** command:

```
hostname# show ips
Sensor name
------------
ips1
ips2
```

The following is sample output from the **show ips detail** command:

```
hostname# show ips detail
Sensor name              Sensor ID
------------             ---------
ips1                     1
ips2                     2
```

Related Commands

Command	Description
allocate-ips	Assigns a virtual sensor to a security context.
ips	Diverts traffic to the AIP SSM.

show ipsec sa

To display a list of IPsec SAs, use the **show ipsec sa** command in global configuration mode or privileged EXEC mode. You can also use the alternate form of this command: **show crypto ipsec sa**.

show ipsec sa [**assigned-address** *hostname or IP address* | **entry** | **identity** | **inactive** | **map** *map-name* | **peer** *peer-addr*] [**detail**]

Syntax Description

assigned-address	(Optional) Dispay IPsec SAs for the specified hostname or IP address.
detail	(Optional) Displays detailed error information on what is displayed.
entry	(Optional) Displays IPsec SAs sorted by peer address
identity	(Optional) Displays IPsec SAs for sorted by identity, not including ESPs. This is a condensed form.
inactive	(Optional) Displays IPsec SAs that are unable to pass traffic.
map *map-name*	(Optional) Displays IPsec SAs for the specified crypto map.
peer *peer-addr*	(Optional) Displays IPsec SAs for specified peer IP addresses.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Added support for OSPFv3 and multiple context mode.
9.1(4)	Output has been updated to reflect the assigned IPv6 address and to indicate the GRE Transport Mode security association when doing IKEv2 dual traffic.

Examples

The following example, entered in global configuration mode, displays IPsec SAs, including the assigned IPv6 address and the Tansport Mode and GRE encapsulation indication.

```
hostname(config)# sho ipsec sa
interface: outside
    Crypto map tag: def, seq num: 1, local addr: 75.2.1.23

      local ident (addr/mask/prot/port): (75.2.1.23/255.255.255.255/47/0)
      remote ident (addr/mask/prot/port): (75.2.1.60/255.255.255.255/47/0)
```

```
    current_peer: 75.2.1.60, username: rashmi
    dynamic allocated peer ip: 65.2.1.100
    dynamic allocated peer ip(ipv6): 2001:1000::10

    #pkts encaps: 0, #pkts encrypt: 0, #pkts digest: 0
    #pkts decaps: 18, #pkts decrypt: 18, #pkts verify: 18
    #pkts compressed: 0, #pkts decompressed: 0
    #pkts not compressed: 0, #pkts comp failed: 0, #pkts decomp failed: 0
    #post-frag successes: 0, #post-frag failures: 0, #fragments created: 0
    #PMTUs sent: 0, #PMTUs rcvd: 0, #decapsulated frgs needing reassembly: 0
    #TFC rcvd: 0, #TFC sent: 0
    #Valid ICMP Errors rcvd: 0, #Invalid ICMP Errors rcvd: 0
    #send errors: 0, #recv errors: 4

   local crypto endpt.: 75.2.1.23/4500, remote crypto endpt.: 75.2.1.60/64251
    path mtu 1342, ipsec overhead 62(44), override mtu 1280, media mtu 1500
    PMTU time remaining (sec): 0, DF policy: copy-df
    ICMP error validation: disabled, TFC packets: disabled
    current outbound spi: D9C00FC2
    current inbound spi : 4FCB6624

  inbound esp sas:
    spi: 0x4FCB6624 (1338730020)
       transform: esp-3des esp-sha-hmac no compression
       in use settings ={RA, Transport,  NAT-T-Encaps, GRE, IKEv2, }
       slot: 0, conn_id: 8192, crypto-map: def
       sa timing: remaining key lifetime (sec): 28387
       IV size: 8 bytes
       replay detection support: Y
       Anti replay bitmap:
        0x0003FFFF 0xFFFFFFFF
  outbound esp sas:
    spi: 0xD9C00FC2 (3653242818)
       transform: esp-3des esp-sha-hmac no compression
       in use settings ={RA, Transport,  NAT-T-Encaps, GRE, IKEv2, }
       slot: 0, conn_id: 8192, crypto-map: def
       sa timing: remaining key lifetime (sec): 28387
       IV size: 8 bytes
      replay detection support: Y
       Anti replay bitmap:
        0x00000000 0x00000001
```

The following example, entered in global configuration mode, displays IPsec SAs, including an in-use setting to identify a tunnel as OSPFv3.

```
hostname(config)# show ipsec sa
interface: outside2
    Crypto map tag: def, local addr: 10.132.0.17

      local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
      remote ident (addr/mask/prot/port): (172.20.0.21/255.255.255.255/0/0)
      current_peer: 172.20.0.21
      dynamic allocated peer ip: 10.135.1.5

      #pkts encaps: 0, #pkts encrypt: 0, #pkts digest: 0
      #pkts decaps: 1145, #pkts decrypt: 1145, #pkts verify: 1145
      #pkts compressed: 0, #pkts decompressed: 0
      #pkts not compressed: 0, #pkts comp failed: 0, #pkts decomp failed: 0
      #pre-frag successes: 2, #pre-frag failures: 1, #fragments created: 10
      #PMTUs sent: 5, #PMTUs rcvd: 2, #decapstulated frags needing reassembly: 1
      #send errors: 0, #recv errors: 0

      local crypto endpt.: 10.132.0.17, remote crypto endpt.: 172.20.0.21
```

```
      path mtu 1500, ipsec overhead 60, media mtu 1500
      current outbound spi: DC15BF68

    inbound esp sas:
      spi: 0x1E8246FC (511854332)
         transform: esp-3des esp-md5-hmac
         in use settings ={L2L, Transport, Manual key (OSPFv3),}
         slot: 0, conn_id: 3, crypto-map: def
         sa timing: remaining key lifetime (sec): 548
         IV size: 8 bytes
         replay detection support: Y
    outbound esp sas:
      spi: 0xDC15BF68 (3692412776)
         transform: esp-3des esp-md5-hmac
         in use settings ={L2L, Transport, Manual key (OSPFv3), }
         slot: 0, conn_id: 3, crypto-map: def
         sa timing: remaining key lifetime (sec): 548
         IV size: 8 bytes
         replay detection support: Y

    Crypto map tag: def, local addr: 10.132.0.17

      local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
hostname(config)#
```

Note Fragmentation statistics are pre-fragmentation statistics if the IPsec SA policy states that fragmentation occurs before IPsec processing. Post-fragmentation statistics appear if the SA policy states that fragmentation occurs after IPsec processing.

The following example, entered in global configuration mode, displays IPsec SAs for a crypto map named def.

```
hostname(config)# show ipsec sa map def
cryptomap: def
    Crypto map tag: def, local addr: 172.20.0.17

      local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
      remote ident (addr/mask/prot/port): (10.132.0.21/255.255.255.255/0/0)
      current_peer: 10.132.0.21
      dynamic allocated peer ip: 90.135.1.5

      #pkts encaps: 0, #pkts encrypt: 0, #pkts digest: 0
      #pkts decaps: 1146, #pkts decrypt: 1146, #pkts verify: 1146
      #pkts compressed: 0, #pkts decompressed: 0
      #pkts not compressed: 0, #pkts comp failed: 0, #pkts decomp failed: 0
      #send errors: 0, #recv errors: 0

      local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.132.0.21

      path mtu 1500, ipsec overhead 60, media mtu 1500
      current outbound spi: DC15BF68

    inbound esp sas:
      spi: 0x1E8246FC (511854332)
         transform: esp-3des esp-md5-hmac
         in use settings ={RA, Tunnel, }
         slot: 0, conn_id: 3, crypto-map: def
         sa timing: remaining key lifetime (sec): 480
         IV size: 8 bytes
         replay detection support: Y
    outbound esp sas:
      spi: 0xDC15BF68 (3692412776)
```

```
        transform: esp-3des esp-md5-hmac
        in use settings ={RA, Tunnel, }
        slot: 0, conn_id: 3, crypto-map: def
        sa timing: remaining key lifetime (sec): 480
        IV size: 8 bytes
        replay detection support: Y

    Crypto map tag: def, local addr: 172.20.0.17

      local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
      remote ident (addr/mask/prot/port): (192.168.132.0/255.255.255.0/0/0)
      current_peer: 10.135.1.8
      dynamic allocated peer ip: 0.0.0.0

      #pkts encaps: 73672, #pkts encrypt: 73672, #pkts digest: 73672
      #pkts decaps: 78824, #pkts decrypt: 78824, #pkts verify: 78824
      #pkts compressed: 0, #pkts decompressed: 0
      #pkts not compressed: 73672, #pkts comp failed: 0, #pkts decomp failed: 0
      #send errors: 0, #recv errors: 0

      local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.135.1.8

      path mtu 1500, ipsec overhead 60, media mtu 1500
      current outbound spi: 3B6F6A35

    inbound esp sas:
      spi: 0xB32CF0BD (3006066877)
         transform: esp-3des esp-md5-hmac
         in use settings ={RA, Tunnel, }
         slot: 0, conn_id: 4, crypto-map: def
         sa timing: remaining key lifetime (sec): 263
         IV size: 8 bytes
         replay detection support: Y
    outbound esp sas:
      spi: 0x3B6F6A35 (997157429)
         transform: esp-3des esp-md5-hmac
         in use settings ={RA, Tunnel, }
         slot: 0, conn_id: 4, crypto-map: def
         sa timing: remaining key lifetime (sec): 263
         IV size: 8 bytes
         replay detection support: Y
hostname(config)#
```

The following example, entered in global configuration mode, shows IPsec SAs for the keyword **entry**.

```
hostname(config)# show ipsec sa entry
peer address: 10.132.0.21
    Crypto map tag: def, local addr: 172.20.0.17

      local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
      remote ident (addr/mask/prot/port): (10.132.0.21/255.255.255.255/0/0)
      current_peer: 10.132.0.21
      dynamic allocated peer ip: 90.135.1.5

      #pkts encaps: 0, #pkts encrypt: 0, #pkts digest: 0
      #pkts decaps: 1147, #pkts decrypt: 1147, #pkts verify: 1147
      #pkts compressed: 0, #pkts decompressed: 0
      #pkts not compressed: 0, #pkts comp failed: 0, #pkts decomp failed: 0
      #send errors: 0, #recv errors: 0

      local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.132.0.21

      path mtu 1500, ipsec overhead 60, media mtu 1500
      current outbound spi: DC15BF68
```

```
    inbound esp sas:
      spi: 0x1E8246FC (511854332)
         transform: esp-3des esp-md5-hmac
         in use settings ={RA, Tunnel, }
         slot: 0, conn_id: 3, crypto-map: def
         sa timing: remaining key lifetime (sec): 429
         IV size: 8 bytes
         replay detection support: Y
    outbound esp sas:
      spi: 0xDC15BF68 (3692412776)
         transform: esp-3des esp-md5-hmac
         in use settings ={RA, Tunnel, }
         slot: 0, conn_id: 3, crypto-map: def
         sa timing: remaining key lifetime (sec): 429
         IV size: 8 bytes
         replay detection support: Y

peer address: 10.135.1.8
    Crypto map tag: def, local addr: 172.20.0.17

      local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
      remote ident (addr/mask/prot/port): (192.168.132.0/255.255.255.0/0/0)
      current_peer: 10.135.1.8
      dynamic allocated peer ip: 0.0.0.0

      #pkts encaps: 73723, #pkts encrypt: 73723, #pkts digest: 73723
      #pkts decaps: 78878, #pkts decrypt: 78878, #pkts verify: 78878
      #pkts compressed: 0, #pkts decompressed: 0
      #pkts not compressed: 73723, #pkts comp failed: 0, #pkts decomp failed: 0
      #send errors: 0, #recv errors: 0

      local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.135.1.8

      path mtu 1500, ipsec overhead 60, media mtu 1500
      current outbound spi: 3B6F6A35

    inbound esp sas:
      spi: 0xB32CF0BD (3006066877)
         transform: esp-3des esp-md5-hmac
         in use settings ={RA, Tunnel, }
         slot: 0, conn_id: 4, crypto-map: def
         sa timing: remaining key lifetime (sec): 212
         IV size: 8 bytes
         replay detection support: Y
    outbound esp sas:
      spi: 0x3B6F6A35 (997157429)
         transform: esp-3des esp-md5-hmac
         in use settings ={RA, Tunnel, }
         slot: 0, conn_id: 4, crypto-map: def
         sa timing: remaining key lifetime (sec): 212
         IV size: 8 bytes
         replay detection support: Y
hostname(config)#
```

The following example, entered in global configuration mode, shows IPsec SAs with the keywords **entry detail**.

```
hostname(config)# show ipsec sa entry detail
peer address: 10.132.0.21
    Crypto map tag: def, local addr: 172.20.0.17

      local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
      remote ident (addr/mask/prot/port): (10.132.0.21/255.255.255.255/0/0)
```

```
      current_peer: 10.132.0.21
      dynamic allocated peer ip: 90.135.1.5

      #pkts encaps: 0, #pkts encrypt: 0, #pkts digest: 0
      #pkts decaps: 1148, #pkts decrypt: 1148, #pkts verify: 1148
      #pkts compressed: 0, #pkts decompressed: 0
      #pkts not compressed: 0, #pkts comp failed: 0, #pkts decomp failed: 0
      #pkts no sa (send): 0, #pkts invalid sa (rcv): 0
      #pkts encaps failed (send): 0, #pkts decaps failed (rcv): 0
      #pkts invalid prot (rcv): 0, #pkts verify failed: 0
      #pkts invalid identity (rcv): 0, #pkts invalid len (rcv): 0
      #pkts replay rollover (send): 0, #pkts replay rollover (rcv): 0
      #pkts replay failed (rcv): 0
      #pkts internal err (send): 0, #pkts internal err (rcv): 0

      local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.132.0.21

      path mtu 1500, ipsec overhead 60, media mtu 1500
      current outbound spi: DC15BF68

    inbound esp sas:
      spi: 0x1E8246FC (511854332)
         transform: esp-3des esp-md5-hmac
         in use settings ={RA, Tunnel, }
         slot: 0, conn_id: 3, crypto-map: def
         sa timing: remaining key lifetime (sec): 322
         IV size: 8 bytes
         replay detection support: Y
    outbound esp sas:
      spi: 0xDC15BF68 (3692412776)
         transform: esp-3des esp-md5-hmac
         in use settings ={RA, Tunnel, }
         slot: 0, conn_id: 3, crypto-map: def
         sa timing: remaining key lifetime (sec): 322
         IV size: 8 bytes
         replay detection support: Y

peer address: 10.135.1.8
    Crypto map tag: def, local addr: 172.20.0.17

      local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
      remote ident (addr/mask/prot/port): (192.168.132.0/255.255.255.0/0/0)
      current_peer: 10.135.1.8
      dynamic allocated peer ip: 0.0.0.0

      #pkts encaps: 73831, #pkts encrypt: 73831, #pkts digest: 73831
      #pkts decaps: 78989, #pkts decrypt: 78989, #pkts verify: 78989
      #pkts compressed: 0, #pkts decompressed: 0
      #pkts not compressed: 73831, #pkts comp failed: 0, #pkts decomp failed: 0
      #pkts no sa (send): 0, #pkts invalid sa (rcv): 0
      #pkts encaps failed (send): 0, #pkts decaps failed (rcv): 0
      #pkts invalid prot (rcv): 0, #pkts verify failed: 0
      #pkts invalid identity (rcv): 0, #pkts invalid len (rcv): 0
      #pkts replay rollover (send): 0, #pkts replay rollover (rcv): 0
      #pkts replay failed (rcv): 0
      #pkts internal err (send): 0, #pkts internal err (rcv): 0

      local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.135.1.8

      path mtu 1500, ipsec overhead 60, media mtu 1500
      current outbound spi: 3B6F6A35

    inbound esp sas:
      spi: 0xB32CF0BD (3006066877)
```

```
        transform: esp-3des esp-md5-hmac
        in use settings ={RA, Tunnel, }
        slot: 0, conn_id: 4, crypto-map: def
        sa timing: remaining key lifetime (sec): 104
        IV size: 8 bytes
        replay detection support: Y
    outbound esp sas:
      spi: 0x3B6F6A35 (997157429)
        transform: esp-3des esp-md5-hmac
        in use settings ={RA, Tunnel, }
        slot: 0, conn_id: 4, crypto-map: def
        sa timing: remaining key lifetime (sec): 104
        IV size: 8 bytes
        replay detection support: Y
hostname(config)#
```

The following example shows IPsec SAs with the keyword **identity**.

```
hostname(config)# show ipsec sa identity
interface: outside2
    Crypto map tag: def, local addr: 172.20.0.17

      local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
      remote ident (addr/mask/prot/port): (10.132.0.21/255.255.255.255/0/0)
      current_peer: 10.132.0.21
      dynamic allocated peer ip: 90.135.1.5

      #pkts encaps: 0, #pkts encrypt: 0, #pkts digest: 0
      #pkts decaps: 1147, #pkts decrypt: 1147, #pkts verify: 1147
      #pkts compressed: 0, #pkts decompressed: 0
      #pkts not compressed: 0, #pkts comp failed: 0, #pkts decomp failed: 0
      #send errors: 0, #recv errors: 0

      local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.132.0.21

      path mtu 1500, ipsec overhead 60, media mtu 1500
      current outbound spi: DC15BF68

    Crypto map tag: def, local addr: 172.20.0.17

      local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
      remote ident (addr/mask/prot/port): (192.168.132.0/255.255.255.0/0/0)
      current_peer: 10.135.1.8
      dynamic allocated peer ip: 0.0.0.0

      #pkts encaps: 73756, #pkts encrypt: 73756, #pkts digest: 73756
      #pkts decaps: 78911, #pkts decrypt: 78911, #pkts verify: 78911
      #pkts compressed: 0, #pkts decompressed: 0
      #pkts not compressed: 73756, #pkts comp failed: 0, #pkts decomp failed: 0
      #send errors: 0, #recv errors: 0

      local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.135.1.8

      path mtu 1500, ipsec overhead 60, media mtu 1500
      current outbound spi: 3B6F6A35
```

The following example shows IPsec SAs with the keywords **identity** and **detail**.

```
hostname(config)# show ipsec sa identity detail
interface: outside2
    Crypto map tag: def, local addr: 172.20.0.17

      local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
      remote ident (addr/mask/prot/port): (10.132.0.21/255.255.255.255/0/0)
```

```
      current_peer: 10.132.0.21
      dynamic allocated peer ip: 90.135.1.5

      #pkts encaps: 0, #pkts encrypt: 0, #pkts digest: 0
      #pkts decaps: 1147, #pkts decrypt: 1147, #pkts verify: 1147
      #pkts compressed: 0, #pkts decompressed: 0
      #pkts not compressed: 0, #pkts comp failed: 0, #pkts decomp failed: 0
      #pkts no sa (send): 0, #pkts invalid sa (rcv): 0
      #pkts encaps failed (send): 0, #pkts decaps failed (rcv): 0
      #pkts invalid prot (rcv): 0, #pkts verify failed: 0
      #pkts invalid identity (rcv): 0, #pkts invalid len (rcv): 0
      #pkts replay rollover (send): 0, #pkts replay rollover (rcv): 0
      #pkts replay failed (rcv): 0
      #pkts internal err (send): 0, #pkts internal err (rcv): 0

      local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.132.0.21

      path mtu 1500, ipsec overhead 60, media mtu 1500
      current outbound spi: DC15BF68

    Crypto map tag: def, local addr: 172.20.0.17

      local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
      remote ident (addr/mask/prot/port): (192.168.132.0/255.255.255.0/0/0)
      current_peer: 10.135.1.8
      dynamic allocated peer ip: 0.0.0.0

      #pkts encaps: 73771, #pkts encrypt: 73771, #pkts digest: 73771
      #pkts decaps: 78926, #pkts decrypt: 78926, #pkts verify: 78926
      #pkts compressed: 0, #pkts decompressed: 0
      #pkts not compressed: 73771, #pkts comp failed: 0, #pkts decomp failed: 0
      #pkts no sa (send): 0, #pkts invalid sa (rcv): 0
      #pkts encaps failed (send): 0, #pkts decaps failed (rcv): 0
      #pkts invalid prot (rcv): 0, #pkts verify failed: 0
      #pkts invalid identity (rcv): 0, #pkts invalid len (rcv): 0
      #pkts replay rollover (send): 0, #pkts replay rollover (rcv): 0
      #pkts replay failed (rcv): 0
      #pkts internal err (send): 0, #pkts internal err (rcv): 0

      local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.135.1.8

      path mtu 1500, ipsec overhead 60, media mtu 1500
      current outbound spi: 3B6F6A35
```

The following example displays IPSec SAs based on IPv6 assigned address:

```
hostname(config)# sho ipsec sa assigned-address 2001:1000::10
assigned address: 2001:1000::10
    Crypto map tag: def, seq num: 1, local addr: 75.2.1.23

      local ident (addr/mask/prot/port): (75.2.1.23/255.255.255.255/47/0)
      remote ident (addr/mask/prot/port): (75.2.1.60/255.255.255.255/47/0)
      current_peer: 75.2.1.60, username: rashmi
      dynamic allocated peer ip: 65.2.1.100
      dynamic allocated peer ip(ipv6): 2001:1000::10

      #pkts encaps: 0, #pkts encrypt: 0, #pkts digest: 0
      #pkts decaps: 326, #pkts decrypt: 326, #pkts verify: 326
      #pkts compressed: 0, #pkts decompressed: 0
      #pkts not compressed: 0, #pkts comp failed: 0, #pkts decomp failed: 0
      #post-frag successes: 0, #post-frag failures: 0, #fragments created: 0
      #PMTUs sent: 0, #PMTUs rcvd: 0, #decapsulated frgs needing reassembly: 0      #TFC
rcvd: 0, #TFC sent: 0
      #Valid ICMP Errors rcvd: 0, #Invalid ICMP Errors rcvd: 0
```

```
  #send errors: 0, #recv errors: 35

  local crypto endpt.: 75.2.1.23/4500, remote crypto endpt.: 75.2.1.60/64251
  path mtu 1342, ipsec overhead 62(44), override mtu 1280, media mtu 1500
  PMTU time remaining (sec): 0, DF policy: copy-df
  ICMP error validation: disabled, TFC packets: disabled
  current outbound spi: D9C00FC2
  current inbound spi : 4FCB6624

inbound esp sas:
  spi: 0x4FCB6624 (1338730020)
     transform: esp-3des esp-sha-hmac no compression
     in use settings ={RA, Transport,  NAT-T-Encaps, GRE, IKEv2, }
     slot: 0, conn_id: 8192, crypto-map: def
     sa timing: remaining key lifetime (sec): 28108
     IV size: 8 bytes
     replay detection support: Y
     Anti replay bitmap:
      0xFFFFFFFF 0xFFFFFFFF
outbound esp sas:
  spi: 0xD9C00FC2 (3653242818)
     transform: esp-3des esp-sha-hmac no compression
     in use settings ={RA, Transport,  NAT-T-Encaps, GRE, IKEv2, }
     slot: 0, conn_id: 8192, crypto-map: def
     sa timing: remaining key lifetime (sec): 28108
     IV size: 8 bytes
     replay detection support: Y
     Anti replay bitmap:
      0x00000000 0x00000001
```

Related Commands

Command	Description
clear configure isakmp	Clears all the ISAKMP configuration.
clear configure isakmp policy	Clears all ISAKMP policy configuration.
clear isakmp sa	Clears the IKE runtime SA database.
isakmp enable	Enables ISAKMP negotiation on the interface on which the IPsec peer communicates with the ASA.
show running-config isakmp	Displays all the active ISAKMP configuration.

show ipsec sa summary

To display a summary of IPsec SAs, use the **show ipsec sa summary** command in global configuration mode or privileged EXEC mode.

show ipsec sa summary

Syntax Description

This command has no arguments or variables.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Examples

The following example, entered in global configuration mode, displays a summary of IPsec SAs by the following connection types:

- IPsec
- IPsec over UDP
- IPsec over NAT-T
- IPsec over TCP
- IPsec VPN load balancing

```
hostname(config)# show ipsec sa summary

Current IPsec SA's:           Peak IPsec SA's:
IPsec            :     2        Peak Concurrent SA  :    14
IPsec over UDP   :     2        Peak Concurrent L2L :     0
IPsec over NAT-T :     4        Peak Concurrent RA  :    14
IPsec over TCP   :     6
IPsec VPN LB     :     0
Total            :    14
hostname(config)#
```

Related Commands

Command	Description
clear ipsec sa	Removes IPsec SAs entirely or based on specific parameters.
show ipsec sa	Displays a list of IPsec SAs.
show ipsec stats	Displays a list of IPsec statistics.

show ipsec stats

To display a list of IPsec statistics, use the **show ipsec stats** command in global configuration mode or privileged EXEC mode.

show ipsec stats

Syntax Description

This command has no keywords or variables.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	ESPv3 statistics are shown with IPsec subsystems, and support for multiple context mode was added.

Usage Guidelines

The following table describes what the output entries indicate.

Output	Description
IPsec Global Statistics	This section pertains to the total number of IPsec tunnels that the ASA supports.
Active tunnels	The number of IPsec tunnels that are currently connected.
Previous tunnels	The number of IPsec tunnels that have been connected, including the active ones.
Inbound	This section pertains to inbound encrypted traffic that is received through IPsec tunnels.
Bytes	The number of bytes of encrypted traffic that has been received.
Decompressed bytes	The number of bytes of encrypted traffic that were received after decompression was performed, if applicable. This counter should always be equal to the previous one if compression is not enabled.

Output (continued)	Description (continued)
Packets	The number of encrypted IPsec packets that were received.
Dropped packets	The number of encrypted IPsec packets that were received and dropped because of errors.
Replay failures	The number of anti-replay failure that were detected on received, encrypted IPsec packets.
Authentications	The number of successful authentications performed on received, encrypted IPsec packets.
Authentication failures	The number of authentications failure detected on received, encrypted IPsec packets.
Decryptions	The number of successful decryptions performed on received, encrypted IPsec packets.
Decryption failures	The number of decryptions failures detected on received, encrypted IPsec packets.
Decapsulated fragments needing reassembly	The number of decryption IPsec packets that include IP fragments to be reassembled.
Outbound	This section pertains to outbound cleartext traffic to be transmitted through IPsec traffic.
Bytes	The number of bytes of cleartext traffic to be encrypted and transmitted through IPsec tunnels.
Uncompressed bytes	The number of bytes of uncompressed cleartext traffic to be encrypted and transmitted through IPsec tunnels. The counter should always be equal to the previous one if compression is not enabled
Packets	The number of cleartext packets to be encrypted and transmitted through IPsec tunnels.
Dropped packets	The number of cleartext packets to be encrypted and transmitted through IPsec tunnels that have been dropped because of errors.
Authentications	The number of successful authentications performed on packets to be transmitted through IPsec tunnels.
Authentication failures	The number of authentication failures that were detected on packets to be transmitted through IPsec tunnels.
Encryptions	The number of successful encryptions that were performed on packets to be transmitted through IPsec tunnels.
Encryption failures	The number of encryption failures that were detected on packets to be transmitted through IPsec tunnels.
Fragmentation successes	The number of successful fragmentation operations that were performed as part of outbound IPsec packet transformation.
Pre-fragmentation successes	The number of successful prefragmentation operations that were performed as part of outbound IPsec packet transformation. Prefragmentation occurs before the cleartext packet is encrypted and encapsulated as one or more IPsec packets.

Output (continued)	Description (continued)
Post-fragmentation successes	The number of successful prefragmentation operations that were performed as part of outbound IPsec packet transformation. Post-fragmentation occurs after the cleartext packet is encrypted and encapsulated as an IPsec packet, which results in multiple IP fragments. These fragments must be reassembled before decryption.
Fragmentation failures	The number of fragmentation failures that have occurred during outbound IPsec packet transformation.
Pre-fragmentation failures	The number of prefragmentation failures that have occurred during outbound IPsec packet transformation. Prefragmentation occurs before the cleartext packet is encrypted and encapsulated as one or more IPsec packets.
Post-fragmentation failure	The number of post-fragmentation failure that have occurred during outbound IPsec packet transformation. Post-fragmentation occurs after the cleartext packet is encrypted and encapsulated as an IPsec packet, which results in multiple IP fragments. These fragments must be reassembled before decryption.
Fragments created	The number of fragments that were created as part of IPsec transformation.
PMTUs sent	The number of path MTU messages that were sent by the IPsec system. IPsec will send a PMTU message to an inside host that is sending packets that are too large to be transmitted through an IPsec tunnel after encapsulation. The PMTU message is a request for the host to lower its MTU and send smaller packets for transmission through the IPsec tunnel.
PMTUs recvd	The number of path MTU messages that were received by the IPsec system. IPsec will receive a path MTU message from a downstream network element if the packets it is sending through the tunnel are too large to traverse that network element. IPsec will usually lower its tunnel MTU when a path MTU message is received.
Protocol failures	The number of malformed IPsec packets that have been received.
Missing SA failures	The number of IPsec operations that have been requested for which the specified IPsec security association does not exist.
System capacity failures	The number of IPsec operations that cannot be completed because the capacity of the IPsec system is not high enough to support the data rate.

Examples

The following example, entered in global configuration mode, displays IPsec statistics:

```
hostname(config)# show ipsec stats

IPsec Global Statistics
-----------------------
Active tunnels: 2
Previous tunnels: 9
```

```
Inbound
    Bytes: 4933013
    Decompressed bytes: 4933013
    Packets: 80348
    Dropped packets: 0
    Replay failures: 0
    Authentications: 80348
    Authentication failures: 0
    Decryptions: 80348
    Decryption failures: 0
    Decapsulated fragments needing reassembly: 0
Outbound
    Bytes: 4441740
    Uncompressed bytes: 4441740
    Packets: 74029
    Dropped packets: 0
    Authentications: 74029
    Authentication failures: 0
    Encryptions: 74029
    Encryption failures: 0
    Fragmentation successes: 3
        Pre-fragmentation successes:2
        Post-fragmentation successes: 1
    Fragmentation failures: 2
        Pre-fragmentation failures:1
        Post-fragmentation failures: 1
    Fragments created: 10
    PMTUs sent: 1
    PMTUs recvd: 2
Protocol failures: 0
Missing SA failures: 0
System capacity failures: 0
hostname(config)#
```

Related Commands

Command	Description
clear ipsec sa	Clears IPsec SAs or counters based on specified parameters.
crypto ipsec transform-set	Defines a transform set.
show ipsec sa	Displays IPsec SAs based on specified parameters.
show ipsec sa summary	Displays a summary of IPsec SAs.

CHAPTER 50

show ipv6 access-list through show ipv6 traffic Commands

show ipv6 access-list

To display the IPv6 access list, use the **show ipv6 access-list** command in privileged EXEC mode. The IPv6 access list determines what IPv6 traffic can pass through the ASA.

show ipv6 access-list [*id* [*source-ipv6-prefix/prefix-length* | **any** | **host** *source-ipv6-address*]]

Syntax Description

any	(Optional) An abbreviation for the IPv6 prefix ::/0.
host *source-ipv6-address*	(Optional) IPv6 address of a specific host. When provided, only the access rules for the specified host are displayed.
id	(Optional) The access list name. When provided, only the specified access list is displayed.
source-ipv6-prefix /prefix-length	(Optional) IPv6 network address and prefix. When provided, only the access rules for the specified IPv6 network are displayed.

Defaults

Displays all IPv6 access lists.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **show ipv6 access-list** command provides output similar to the **show ip access-list** command, except that it is IPv6-specific.

Examples

The following is sample output from the **show ipv6 access-list** command. It shows IPv6 access lists named inbound, tcptraffic, and outbound.

```
hostname# show ipv6 access-list
IPv6 access list inbound
    permit tcp any any eq bgp reflect tcptraffic (8 matches) sequence 10
    permit tcp any any eq telnet reflect tcptraffic (15 matches) sequence 20
    permit udp any any reflect udptraffic sequence 30
IPv6 access list tcptraffic (reflexive) (per-user)
    permit tcp host 2001:0DB8:1::1 eq bgp host 2001:0DB8:1::2 eq 11000 timeout 300 (time
        left 243) sequence 1
    permit tcp host 2001:0DB8:1::1 eq telnet host 2001:0DB8:1::2 eq 11001 timeout 300
        (time left 296) sequence 2
```

```
IPv6 access list outbound
    evaluate udptraffic
    evaluate tcptraffic
```

Related Commands

Command	Description
ipv6 access-list	Creates an IPv6 access list.

show ipv6 dhcprelay binding

To display the relay binding entries created by the relay agent, use the **show ipv6 dhcprelay binding** command in privileged EXEC mode.

show ipv6 dhcprelay binding

Syntax Description

This command has no keywords or variables.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

The **show ipv6 dhcprelay binding** command allows you to check the relay binding entries that the relay agent has created.

Examples

The following is sample output from the **show ipv6 dhcprelay binding** command:

```
hostname# show ipv6 dhcprelay binding
1 in use, 2 most used

Client: fe80::204:23ff:febb:b094 (inside)
  DUID: 000100010f9a59d1000423bbb094, Timeout in 60 seconds

Above binding is created for client with link local address of fe80::204:23ff:febb:b094 on
the inside interface using DHCPv6 id of 000100010f9a59d1000423bbb094, and will timeout in
60 seconds.

There will be limit of 1000 bindings for each context.
```

Related Commands

Command	Description
show ipv6 dhcprelay statistics	Shows the IPv6 DHCP relay agent information.

show ipv6 dhcprelay statistics

To display the IPv6 DHCP relay agent statistics, use the **show ipv6 dhcprelay statistics** command in privileged EXEC mode.

show ipv6 dhcprelay statistics

Syntax Description

This command has no keywords or variables.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

The **show ipv6 dhcprelay statistics** command allows you to view IPv6 DHCP relay agent information.

Examples

The following is sample output from the **show ipv6 dhcprelay statistics** command:

```
hostname# show ipv6 dhcprelay statistics
Relay Messages:
  SOLICIT                                    1
  ADVERTISE                                  2
  REQUEST                                    1
  CONFIRM                                    1
  RENEW                                    496
  REBIND                                     0
  REPLY                                    498
  RELEASE                                    0
  DECLINE                                    0
  RECONFIGURE                                0
  INFORMATION-REQUEST                        0
  RELAY-FORWARD                            499
  RELAY-REPLY                              500

Relay Errors:
  Malformed message:                         0
  Block allocation/duplication failures:     0
  Hop count limit exceeded:                  0
  Forward binding creation failures:         0
```

```
  Reply binding lookup failures:               0
  No output route:                             0
  Conflict relay server route:                 0
  Failed to add server NP rule:                0
  Unit or context is not active:               0

Total Relay Bindings Created:                498
```

Related Commands

Command	Description
show ipv6 dhcprelay binding	Shows the relay binding entries created by the relay agent.

show ipv6 interface

To display the status of interfaces configured for IPv6, use the **show ipv6 interface** command in privileged EXEC mode.

show ipv6 interface [**brief**] [*if_name* [**prefix**]]

Syntax Description

brief	Displays a brief summary of IPv6 status and configuration for each interface.
if_name	(Optional) The internal or external interface name, as designated by the **nameif** command. The status and configuration for only the designated interface is shown.
prefix	(Optional) Prefix generated from a local IPv6 prefix pool. The prefix is the network portion of the IPv6 address.

Defaults

Displays all IPv6 interfaces.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **show ipv6 interface** command provides output similar to the **show interface** command, except that it is IPv6-specific. If the interface hardware is usable, the interface is marked *up*. If the interface can provide two-way communication, the line protocol is marked *up*.

When an interface name is not specified, information on all IPv6 interfaces is displayed. Specifying an interface name displays information about the specified interface.

Examples

The following is sample output from the **show ipv6 interface** command:

```
hostname# show ipv6 interface outside
interface ethernet0 "outside" is up, line protocol is up
  IPv6 is enabled, link-local address is 2001:0DB8::/29 [TENTATIVE]
  Global unicast address(es):
    2000::2, subnet is 2000::/64
  Joined group address(es):
    FF02::1
```

```
    FF02::1:FF11:6770
  MTU is 1500 bytes
  ND DAD is enabled, number of DAD attempts: 1
  ND reachable time is 30000 milliseconds
  ND advertised reachable time is 0 milliseconds
  ND advertised retransmit interval is 0 milliseconds
  ND router advertisements are sent every 200 seconds
  ND router advertisements live for 1800 seconds
```

The following is sample output from the **show ipv6 interface** command when entered with the **brief** keyword:

```
hostname# show ipv6 interface brief
outside [up/up]
    unassigned
inside [up/up]
    fe80::20d:29ff:fe1d:69f0
    fec0::a:0:0:a0a:a70
vlan101 [up/up]
    fe80::20d:29ff:fe1d:69f0
    fec0::65:0:0:a0a:6570
dmz-ca [up/up]
    unassigned
```

The following is sample output from the **show ipv6 interface** command. It shows the characteristics of an interface which has generated a prefix from an address.

```
hostname# show ipv6 interface inside prefix
IPv6 Prefix Advertisements inside
Codes: A - Address, P - Prefix-Advertisement, O - Pool
       U - Per-user prefix, D - Default       N - Not advertised, C - Calendar

AD      fec0:0:0:a::/64 [LA] Valid lifetime 2592000, preferred lifetime 604800
```

show ipv6 mld traffic

To display the Multicast Listener Discovery (MLD) traffic counter information, use the **show ipv6 mld traffic** command in privileged EXEC mode.

show ipv6 mld traffic

Syntax Description

This command has no keywords or variables.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.2(4)	This command was introduced.

Usage Guidelines

The **show ipv6 mld traffic** command allows you to check if the expected number of MLD messages have been received and sent.

The following information is provided by the **show ipv6 mld traffic** command:

- Elapsed time since counters cleared—The amount of time since the counters were cleared.
- Valid MLD Packets—The number of valid MLD packets that are received and sent.
- Queries—The number of valid queries that are received and sent.
- Reports—The number of valid reports that are received and sent.
- Leaves—The number of valid leaves received and sent.
- Mtraee packets—The number of multicast trace packets that are received and sent.
- Errors—The types of errors and the numberof errors that have occurred.

Examples

The following is sample output from the **show ipv6 mld traffic** command:

```
hostname# show ipv6 mld traffic
show ipv6 mld traffic
MLD Traffic Counters
Elapsed time since counters cleared: 00:01:19
                   Received           Sent
Valid MLD Packets  1                  3
```

```
Queries            1                   0
Reports            0                   3
Leaves             0                   0
Mtrace packets     0              0
Errors:
Malformed Packets  0
Martian source     0
Non link-local source 0
Hop limit is not equal to 1 0
```

Related Commands

Command	Description
clear ipv6 mld traffic	Resets all MLD traffic counters.

show ipv6 neighbor

To display the IPv6 neighbor discovery cache information, use the **show ipv6 neighbor** command in privileged EXEC mode.

show ipv6 neighbor [*if_name* | *address*]

Syntax Description

address	(Optional) Displays neighbor discovery cache information for the supplied IPv6 address only.
if_name	(Optional) Displays cache information for the supplied interface name, as configured by the **nameif** command only.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The following information is provided by the **show ipv6 neighbor** command:

- IPv6 Address—The IPv6 address of the neighbor or interface.
- Age—The time (in minutes) since the address was confirmed to be reachable. A hyphen (-) indicates a static entry.
- Link-layer Addr—The MAC address. If the address is unknown, a hyphen (-) is displayed.
- State—The state of the neighbor cache entry.

Note Reachability detection is not applied to static entries in the IPv6 neighbor discovery cache; therefore, the descriptions for the INCMP (Incomplete) and REACH (Reachable) states are different for dynamic and static cache entries.

The following are possible states for dynamic entries in the IPv6 neighbor discovery cache:

- INCMP—(Incomplete) Address resolution is being performed on the entry. A neighbor solicitation message has been sent to the solicited-node multicast address of the target, but the corresponding neighbor advertisement message has not yet been received.

  - REACH—(Reachable) Positive confirmation was received within the last ReachableTime milliseconds that the forward path to the neighbor was functioning properly. While in REACH state, the device takes no special action as packets are sent.
  - STALE—More than ReachableTime milliseconds have elapsed since the last positive confirmation was received that the forward path was functioning properly. While in STALE state, the device takes no action until a packet is sent.
  - DELAY—More than ReachableTime milliseconds have elapsed since the last positive confirmation was received that the forward path was functioning properly. A packet was sent within the last DELAY_FIRST_PROBE_TIME seconds. If no reachability confirmation is received within DELAY_FIRST_PROBE_TIME seconds of entering the DELAY state, send a neighbor solicitation message and change the state to PROBE.
  - PROBE—A reachability confirmation is actively sought by resending neighbor solicitation messages every RetransTimer milliseconds until a reachability confirmation is received.
  - ????—Unknown state.

  The following are possible states for static entries in the IPv6 neighbor discovery cache:

  - INCMP—(Incomplete) The interface for this entry is down.
  - REACH—(Reachable) The interface for this entry is up.

- Interface

  The interface from which the address was reachable.

Examples

The following is sample output from the **show ipv6 neighbor** command when entered with an interface:

```
hostname# show ipv6 neighbor inside
IPv6 Address                              Age Link-layer Addr State Interface
2000:0:0:4::2                               0 0003.a0d6.141e  REACH inside
FE80::203:A0FF:FED6:141E                    0 0003.a0d6.141e  REACH inside
3001:1::45a                                 - 0002.7d1a.9472  REACH inside
```

The following is sample output from the **show ipv6 neighbor** command when entered with an IPv6 address:

```
hostname# show ipv6 neighbor 2000:0:0:4::2
IPv6 Address                              Age Link-layer Addr State Interface
2000:0:0:4::2                               0 0003.a0d6.141e  REACH inside
```

Related Commands

Command	Description
clear ipv6 neighbors	Deletes all entries in the IPv6 neighbor discovery cache, except static entries.
ipv6 neighbor	Configures a static entry in the IPv6 neighbor discovery cache.

show ipv6 ospf

To display general information about OSPFv3 routing processes, use the **show ipv6 ospf** command in user EXEC or privileged EXEC mode.

show ipv6 ospf [*process_id*] [*area_id*]

Syntax Description

area_id	(Optional) Shows information about a specified area only.
process_id	(Optional) Specifies an internal ID that is locally assigned and can be any positive integer. This ID is the number assigned administratively when the OSPFv3 routing process is enabled.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—
User EXEC	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

The **show ipv6 ospf** command lists the following settings:

- Event logging
- Router type
- Redistribution route type
- SPF schedule delay
- Hold time between two consecutive SPFs
- Wait time between two consecutive SPFs
- Minimum LSA interval
- Minimum LSA arrival

Examples

The following is sample output from the **show ipv6 ospf** command:

```
hostname# show ipv6 ospf
```

```
Routing Process "ospfv3 1" with ID 10.9.4.1
Event-log enabled, Maximum number of events: 1000, Mode: cyclic
It is an autonomous system boundary router
Redistributing External Routes from,
   ospf 2
Initial SPF schedule delay 5000 msecs
Minimum hold time between two consecutive SPFs 10000 msecs
Maximum wait time between two consecutive SPFs 10000 msecs
Minimum LSA interval 5 secs
Minimum LSA arrival 1000 msecs
```

Related Commands

Command	Description
show ipv6 ospf border-routers	Shows the internal OSPFv3 routing table entries to an area border router (ABR) and an autonomous system boundary router (ASBR).
show ipv6 ospf database	Shows lists of information related to the OSPFv3 database for a specific router.

show ipv6 ospf border-routers

To display the internal OSPFv3 routing table entries to an area border router (ABR) and an autonomous system boundary router (ASBR), use the **show ipv6 ospf border-routers** command in user EXEC or privileged EXEC mode.

show ipv6 ospf [*process_id*] **border-routers**

Syntax Description

process_id	(Optional) Specifies an internal ID that is locally assigned and can be any positive integer. This ID is the number assigned administratively when the OSPFv3 routing process is enabled.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—
User EXEC	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

The **show ipv6 ospf border-routers** command lists the following settings:

- Intra-area route
- Inter-area route
- IPv6 address
- Interface type
- Area ID
- SPF number

Examples

The following is sample output from the **show ipv6 ospf border-routers** command:

```
hostname# show ipv6 ospf border-routers
OSPFv3 Process 1 internal Routing Table

Codes: i - Intra-area route, I - Inter-area route
```

```
i 172.16.4.4 [2] via FE80::205:5FFF:FED3:5808, FastEthernet0/0, ABR, Area 1, SPF 13
i 172.16.4.4 [1] via FE80::205:5FFF:FED3:5406, POS4/0, ABR, Area 0, SPF 8
i 172.16.3.3 [1] via FE80::205:5FFF:FED3:5808, FastEthernet0/0, ASBR, Area 1, SPF 3
```

Related Commands

Command	Description
show ipv6 ospf	Shows all IPv6 settings in the OSPFv3 routing process.
show ipv6 ospf database	Shows lists of information related to the OSPFv3 database for a specific router.

show ipv6 ospf database

To display lists of information related to the OSPFv3 database for a specific router, use the **show ipv6 ospf database** command in user EXEC or privileged EXEC mode.

show ipv6 ospf [*process_id*] [*area_id*] **database** [**external | inter-area prefix | inter-area-router | network | nssa-external | router | area | as | ref-lsa |** [*destination-router-id*] [**prefix** *ipv6-prefix*] [*link-state-id*]] [**link** [**interface** *interface-name*] [**adv-router** *router-id*] | **self-originate**] [**internal**] [**database-summary**]

Syntax Description

adv-router *router-id*	(Optional) Displays all the LSAs of the advertising router. The router ID must be in the form documented in RFC 2740, in which the address is specified in hexadecimal using 16-bit values between colons.
area	(Optional) Displays information only about area LSAs.
area_id	(Optional) Displays information about a specified area only.
as	(Optional) Filters unknown autonomous system (AS) LSAs.
database-summary	(Optional) Displays how many of each type of LSA exists for each area in the database and the total.
destination-router-id	(Optional) Displays information about a specified destination router only.
external	(Optional) Displays information only about the external LSAs.
interface	Optional) Displays information about the LSAs filtered by interface context.
interface-name	(Optional) Specifies the LSA interface name.
internal	(Optional) Displays information only about the internal LSAs.
inter-area prefix	(Optional) Displays information only about LSAs based on inter-area prefix.
inter-area router	(Optional) Displays information only about LSAs based on inter-area router LSAs.
link	(Optional) Displays information about link LSAs. When it follows the **unknown** keyword, the **link** keyword filters link-scope LSAs.
link-state-id	(Optional) Specifies an integer used to differentiate LSAs. In network and link LSAs, the link-state ID matches the interface index.
network	(Optional) Displays information about network LSAs.
nssa-external	(Optional) Displays information only about the not so stubby area (NSSA) external LSAs.
prefix *ipv6-prefix*	(Optional) Displays the link-local IPv6 address of the neighbor. The IPv6 prefix must be in the form documented in RFC 2373, in which the address is specified in hexadecimal using 16-bit values between colons.
process_id	(Optional) Specifies an internal ID that is locally assigned and can be any positive integer. This ID is the number assigned administratively when the OSPF routing process is enabled.
ref-lsa	(Optional) Further filters the prefix LSA type.
router	(Optional) Displays information about router LSAs.
self-originate	(Optional) Displays only self-originated LSAs from the local router.

Defaults No default behavior or values.

Command Modes The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	—	—
User EXEC	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines The various forms of the command provide information about different OSPFv3 LSAs.

Examples The following is sample output from the **show ipv6 ospf database** command:

```
hostname# show ipv6 ospf database

            OSPFv3 Router with ID (172.16.4.4) (Process ID 1)

                Router Link States (Area 0)

ADV Router         Age         Seq#        Fragment ID   Link count  Bits
172.16.4.4         239         0x80000003  0             1           B
172.16.6.6         239         0x80000003  0             1           B

            Inter Area Prefix Link States (Area 0)

ADV Router         Age         Seq#        Prefix
172.16.4.4         249         0x80000001  FEC0:3344::/32
172.16.4.4         219         0x80000001  FEC0:3366::/32
172.16.6.6         247         0x80000001  FEC0:3366::/32
172.16.6.6         193         0x80000001  FEC0:3344::/32
172.16.6.6         82          0x80000001  FEC0::/32

            Inter Area Router Link States (Area 0)

ADV Router         Age         Seq#        Link ID    Dest RtrID
172.16.4.4         219         0x80000001  50529027   172.16.3.3
172.16.6.6         193         0x80000001  50529027   172.16.3.3
            Link (Type-8) Link States (Area 0)

ADV Router         Age         Seq#        Link ID    Interface
172.16.4.4         242         0x80000002  14         PO4/0
172.16.6.6         252         0x80000002  14         PO4/0

            Intra Area Prefix Link States (Area 0)

ADV Router         Age         Seq#        Link ID    Ref-lstype  Ref-LSID
172.16.4.4         242         0x80000002  0          0x2001      0
```

```
172.16.6.6          252         0x80000002  0           0x2001      0
```

Related Commands

Command	Description
show ipv6 ospf	Shows all IPv6 settings in the OSPFv3 routing process.
show ipv6 ospf border-routers	Shows the internal OSPFv3 routing table entries to an area border router (ABR) and an autonomous system boundary router (ASBR).

show ipv6 ospf events

To display OSPFv3 internal event information, use the **show ipv6 ospf events** command in user EXEC or privileged EXEC mode.

show ipv6 ospf [*process_id*] **events**

Syntax Description

process_id	(Optional) Specifies an internal ID that is locally assigned and can be any positive integer. This ID is the number assigned administratively when the OSPF routing process is enabled.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—
User EXEC	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Use this command to display OSPFv3 events information.

Examples

The following is sample output from the **show ipv6 ospf events** command:

```
hostname# show ipv6 ospf events

OSPFv3 Router with ID (10.1.3.2) (Process ID 10)

   1 Jul 9  18:49:34.071: Timer Exp:  ospfv3_if_ack_delayed  0xda05fad8
   2 Jul 9  18:49:31.571: Rcv Unchanged Type-0x2001 LSA, LSID 0.0.0.0, Adv-Rtr 10.1.1.2,
   Seq# 80000008, Age 1, Area 10
   3 Jul 9  18:48:13.241: Generate Changed Type-0x8 LSA, LSID 2.0.0.0, Seq# 80000004, Age
   0, Area 10
   4 Jul 9  18:48:13.241: Generate Changed Type-0x2001 LSA, LSID 0.0.0.0, Seq# 80000005,
   Age 0, Area 10
   5 Jul 9  18:41:18.901: End of SPF, SPF time 0ms, next wait-interval 10000ms
   6 Jul 9  18:41:18.902: Starting External processing in area 10
   7 Jul 9  18:41:18.902: Starting External processing
   8 Jul 9  18:41:18.902: Starting Inter-Area SPF in area 10
   9 Jul 9  18:41:18.902: Generic:  post_spf_intra  0x0
  10 Jul 9  18:41:18.902: RIB Delete (All Paths), Prefix 2002::/64, type Intra
```

```
11 Jul 9  18:41:18.902: RIB Update, Prefix 5005::/64, gw ::, via inside, type Intra
12 Jul 9  18:41:18.902: Starting Intra-Area SPF in Area 10
13 Jul 9  18:41:18.903: Starting SPF, wait-interval 5000ms
14 Jul 9  18:41:16.403: Timer Exp:  ospfv3_if_ack_delayed  0xda05fad8
15 Jul 9  18:41:13.903: Schedule SPF, Area 10, Change in LSA type PLSID 0.8.0.0, Adv-Rtr
50.100.168.192
16 Jul 9  18:41:13.903: Rcv Changed Type-0x2009 LSA, LSID 0.8.0.0, Adv-Rtr 10.1.2.3,
Seq# 80000003, Age 1, Area 10
```

Related Commands

Command	Description
show ipv6 ospf	Shows all IPv6 settings in the OSPFv3 routing process.
show ipv6 ospf border-routers	Shows the internal OSPFv3 routing table entries to an area border router (ABR) and an autonomous system boundary router (ASBR).

show ipv6 ospf flood-list

To display a list of OSPFv3 LSAs waiting to be flooded over an interface, use the **show ipv6 ospf flood-list** command in user EXEC or privileged EXEC mode.

show ipv6 ospf [*process_id*] [*area_id*] **flood-list** *interface-type interface-number*

Syntax Description

area_id	(Optional) Displays information about a specified area only.
interface-number	Specifies the interface number over which the LSAs are flooded.
interface-type	Specifies the interface type over which the LSAs are flooded.
process_id	(Optional) Specifies an internal ID that is locally assigned and can be any positive integer. This ID is the number assigned administratively when the OSPFv3 routing process is enabled.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—
User EXEC	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Use this command to display OSPFv3 packet pacing information.

Examples

The following is sample output from the **show ipv6 ospf flood-list** command:

```
hostname# show ipv6 ospf flood-list

OSPFv3 Router with ID (172.16.6.6) (Process ID 1)

 Interface POS4/0, Queue length 1
 Link state retransmission due in 14 msec

 Type    LS ID           ADV RTR         Seq NO      Age    Checksum
 0x2001  0               172.16.6.6      0x80000031  0      0x1971

 Interface FastEthernet0/0, Queue length 0
```

```
Interface ATM3/0, Queue length 0
```

Related Commands

Command	Description
show ipv6 ospf	Shows all IPv6 settings in the OSPFv3 routing process.
show ipv6 ospf border-routers	Shows the internal OSPFv3 routing table entries to an area border router (ABR) and an autonomous system boundary router (ASBR).

show ipv6 ospf interface

To display OSPFv3-related interface information, use the **show ipv6 ospf interface** command in user EXEC or privileged EXEC mode.

show ipv6 ospf [*process_id*] [*area_id*] **interface** [*type-number*] [**brief**]

Syntax Description

area_id	(Optional) Displays information about a specified area only.
brief	(Optional) Displays brief overview information for OSPFv3 interfaces, states, addresses and masks, and areas on the router.
process_id	(Optional) Specifies an internal ID that is locally assigned and can be any positive integer. This ID is the number assigned administratively when the OSPF routing process is enabled.
type-number	(Optional) Specifies the interface type and number.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—
User EXEC	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Use this command to display overview information for OSPFv3 interfaces, states, addresses and masks, and areas on the router.

Examples

The following is sample output from the **show ipv6 ospf interface** command:

```
hostname# show ipv6 ospf interface

ATM3/0 is up, line protocol is up
  Link Local Address 2001:0DB1:205:5FFF:FED3:5808, Interface ID 13
  Area 1, Process ID 1, Instance ID 0, Router ID 172.16.3.3
  Network Type POINT_TO_POINT, Cost: 1
  Transmit Delay is 1 sec, State POINT_TO_POINT,
  Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
    Hello due in 00:00:06
  Index 1/2/2, flood queue length 0
```

```
  Next 0x0(0)/0x0(0)/0x0(0)
  Last flood scan length is 12, maximum is 12
  Last flood scan time is 0 msec, maximum is 0 msec
  Neighbor Count is 1, Adjacent neighbor count is 1
    Adjacent with neighbor 172.16.4.4
  Suppress hello for 0 neighbor(s)
FastEthernet0/0 is up, line protocol is up
  Link Local Address 2001:0DB1:205:5FFF:FED3:5808, Interface ID 3
  Area 1, Process ID 1, Instance ID 0, Router ID 172.16.3.3
  Network Type BROADCAST, Cost: 1
  Transmit Delay is 1 sec, State BDR, Priority 1
  Designated Router (ID) 172.16.6.6, local address 2001:0DB1:205:5FFF:FED3:6408
  Backup Designated router (ID) 172.16.3.3, local address 2001:0DB1:205:5FFF:FED3:5808
  Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
    Hello due in 00:00:05
  Index 1/1/1, flood queue length 0
  Next 0x0(0)/0x0(0)/0x0(0)
  Last flood scan length is 12, maximum is 12
  Last flood scan time is 0 msec, maximum is 0 msec
  Neighbor Count is 1, Adjacent neighbor count is 1
    Adjacent with neighbor 172.16.6.6  (Designated Router)
  Suppress hello for 0 neighbor(s)
```

Related Commands

Command	Description
show ipv6 ospf	Shows all IPv6 settings in the OSPFv3 routing process.
show ipv6 ospf border-routers	Shows the internal OSPFv3 routing table entries to an area border router (ABR) and an autonomous system boundary router (ASBR).

show ipv6 ospf neighbor

To display OSPFv3 neighbor information on a per-interface basis, use the **show ipv6 ospf neighbor** command in user EXEC or privileged EXEC mode.

show ipv6 ospf [*process_id*] [*area_id*] **neighbor** [*interface-type interface-number*] [*neighbor-id*] [**detail**]

Syntax Description

area_id	(Optional) Displays information about a specified area only.
detail	(Optional) Displays all neighbors information in detail.
interface-type interface-number	(Optional) Specifies the interface type and number.
neighbor-id	(Optional) Specifies the neighbor ID.
process_id	(Optional) Specifies an internal ID that is locally assigned and can be any positive integer. This ID is the number assigned administratively when the OSPF routing process is enabled.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—
User EXEC	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Use this command to display detailed information for OSPFv3 neighbors by interface.

Examples

The following is sample output from the **show ipv6 ospf neighbor** command:

```
hostname# show ipv6 ospf neighbor

Neighbor ID     Pri   State           Dead Time   Interface ID    Interface
172.16.4.4       1    FULL/  -        00:00:31    14              POS4/0
172.16.3.3       1    FULL/BDR        00:00:30    3               FastEthernet00
172.16.5.5       1    FULL/  -        00:00:33    13              ATM3/0
```

The following is sample output from the **show ipv6 ospf neighbor detail** command:

```
Neighbor 172.16.4.4
    In the area 0 via interface POS4/0
    Neighbor: interface-id 14, link-local address FE80::205:5FFF:FED3:5406
    Neighbor priority is 1, State is FULL, 6 state changes
    Options is 0x63AD1B0D
    Dead timer due in 00:00:33
    Neighbor is up for 00:48:56
    Index 1/1/1, retransmission queue length 0, number of retransmission 1
    First 0x0(0)/0x0(0)/0x0(0) Next 0x0(0)/0x0(0)/0x0(0)
    Last retransmission scan length is 1, maximum is 1
    Last retransmission scan time is 0 msec, maximum is 0 msec
 Neighbor 172.16.3.3
    In the area 1 via interface FastEthernet0/0
    Neighbor: interface-id 3, link-local address FE80::205:5FFF:FED3:5808
    Neighbor priority is 1, State is FULL, 6 state changes
    DR is 172.16.6.6 BDR is 172.16.3.3
    Options is 0x63F813E9
    Dead timer due in 00:00:33
    Neighbor is up for 00:09:00
    Index 1/1/2, retransmission queue length 0, number of retransmission 2
    First 0x0(0)/0x0(0)/0x0(0) Next 0x0(0)/0x0(0)/0x0(0)
    Last retransmission scan length is 1, maximum is 2
    Last retransmission scan time is 0 msec, maximum is 0 msec
 Neighbor 172.16.5.5
    In the area 2 via interface ATM3/0
    Neighbor: interface-id 13, link-local address FE80::205:5FFF:FED3:6006
    Neighbor priority is 1, State is FULL, 6 state changes
    Options is 0x63F7D249
    Dead timer due in 00:00:38
    Neighbor is up for 00:10:01
    Index 1/1/3, retransmission queue length 0, number of retransmission 0
    First 0x0(0)/0x0(0)/0x0(0) Next 0x0(0)/0x0(0)/0x0(0)
    Last retransmission scan length is 0, maximum is 0
    Last retransmission scan time is 0 msec, maximum is 0 msec
```

Related Commands

Command	Description
show ipv6 ospf	Shows all IPv6 settings in the OSPFv3 routing process.
show ipv6 ospf border-routers	Shows the internal OSPFv3 routing table entries to an area border router (ABR) and an autonomous system boundary router (ASBR).

show ipv6 ospf request-list

To display a list of all LSAs that have been requested by a router, use the **show ipv6 ospf request-list** command in user EXEC or privileged EXEC mode.

show ipv6 ospf [*process_id*] [*area_id*] **request-list** [*neighbor*] [*interface*] [*interface-neighbor*]

Syntax Description

area_id	(Optional) Displays information about a specified area only.
interface	(Optional) Specifies the list of all LSAs requested by the router from this interface.
interface-neighbor	(Optional) Specifies the list of all LSAs requested by the router on this interface from this neighbor.
neighbor	(Optional) Specifies the list of all LSAs requested by the router from this neighbor.
process_id	(Optional) Specifies an internal ID that is locally assigned and can be any positive integer. This ID is the number assigned administratively when the OSPF routing process is enabled.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—
User EXEC	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Use this command to list all LSAs that a router requests.

Examples

The following is sample output from the **show ipv6 ospf request-list** command:

```
hostname# show ipv6 ospf request-list

            OSPFv3 Router with ID (192.168.255.5) (Process ID 1)

 Neighbor 192.168.255.2, interface Ethernet0/0 address
FE80::A8BB:CCFF:FE00:6600
```

```
Type    LS ID           ADV RTR         Seq NO      Age    Checksum
 1      0.0.0.0         192.168.255.3   0x800000C2  1      0x0014C5
 1      0.0.0.0         192.168.255.2   0x800000C8  0      0x000BCA
 1      0.0.0.0         192.168.255.1   0x800000C5  1      0x008CD1
 2      0.0.0.3         192.168.255.3   0x800000A9  774    0x0058C0
 2      0.0.0.2         192.168.255.3   0x800000B7  1      0x003A63
```

Related Commands

Command	Description
show ipv6 ospf	Shows all IPv6 settings in the OSPFv3 routing process.
show ipv6 ospf border-routers	Shows the internal OSPFv3 routing table entries to an area border router (ABR) and an autonomous system boundary router (ASBR).

show ipv6 ospf retransmission-list

To display a list of all LSAs that have been waiting to be resent, use the **show ipv6 ospf retransmission-list** command in user EXEC or privileged EXEC mode.

show ipv6 ospf [*process_id*] [*area_id*] **retransmission-list** [*neighbor*] [*interface*] [*interface-neighbor*]

Syntax Description

area_id	(Optional) Displays information about a specified area only.
interface	(Optional) Specifies the list of all LSAs waiting to be resent on this interface.
interface-neighbor	(Optional) Specifies the list of all LSAs waiting to be resent for this interface from this neighbor.
neighbor	(Optional) Specifies the list of all LSAs waiting to be resent for this neighbor.
process_id	(Optional) Specifies an internal ID that is locally assigned and can be any positive integer. This ID is the number assigned administratively when the OSPF routing process is enabled.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—
User EXEC	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Use this command to list all LSAs that are waiting to be resent.

Examples

The following is sample output from the **show ipv6 ospf retransmission-list** command:

```
hostname# show ipv6 ospf retransmission-list

        OSPFv3 Router with ID (192.168.255.2) (Process ID 1)

 Neighbor 192.168.255.1, interface Ethernet0/0
```

```
Link state retransmission due in 3759 msec, Queue length 1

Type    LS ID           ADV RTR         Seq NO      Age    Checksum
0x2001  0               192.168.255.2   0x80000222  1      0x00AE52
```

Related Commands

Command	Description
show ipv6 ospf	Shows all IPv6 settings in the OSPFv3 routing process.
show ipv6 ospf border-routers	Shows the internal OSPFv3 routing table entries to an area border router (ABR) and an autonomous system boundary router (ASBR).

show ipv6 ospf statistic

To display various OSPFv3 statistics, use the **show ipv6 ospf statistic** command in user EXEC or privileged EXEC mode.

show ipv6 ospf [*process_id*] **statistic** [**detail**]

Syntax Description

detail	(Optional) Specifies detailed SPF information, including the trigger points.
process_id	(Optional) Specifies an internal ID that is locally assigned and can be any positive integer. This ID is the number assigned administratively when the OSPF routing process is enabled.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•	—	—
User EXEC	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Use this command to list the number of times SPF was executed, the reasons, and the duration.

Examples

The following is sample output from the **show ipv6 ospf statistic** command:

```
hostname# show ipv6 ospf 10 statistic detail


Area 10: SPF algorithm executed 6 times

SPF 1 executed 04:36:56 ago, SPF type Full
  SPF calculation time (in msec):
  SPT    Prefix D-Int  Sum    D-Sum  Ext    D-Ext  Total
       0      0      0      0      0      0      0 0
  RIB manipulation time (in msec):
  RIB Update    RIB Delete
               0             0
  LSIDs processed R:1 N:0 Prefix:0 SN:0 SA:0 X7:0
  Change record R L
  LSAs changed 2
```

```
  Changed LSAs. Recorded is Advertising Router, LSID and LS type:
  49.100.168.192/0(R) 49.100.168.192/2(L)

SPF 2 executed 04:35:50 ago, SPF type Full
  SPF calculation time (in msec):
  SPT    Prefix D-Int  Sum    D-Sum  Ext    D-Ext  Total
       0      0      0      0      0      0      0 0
  RIB manipulation time (in msec):
  RIB Update    RIB Delete
               0            0
  LSIDs processed R:2 N:1 Prefix:0 SN:0 SA:0 X7:0
  Change record R N L
  LSAs changed 5
  Changed LSAs. Recorded is Advertising Router, LSID and LS type:
  50.100.168.192/0(R) 50.100.168.192/2(L) 49.100.168.192/0(R) 50.100.168.192/0(R)
  50.100.168.192/2(N)
```

Related Commands

Command	Description
show ipv6 ospf	Shows all IPv6 settings in the OSPFv3 routing process.
show ipv6 ospf border-routers	Shows the internal OSPFv3 routing table entries to an area border router (ABR) and an autonomous system boundary router (ASBR).

show ipv6 ospf summary-prefix

To display a list of all summary address redistribution information configured under an OSPFv3 process, use the **show ipv6 ospf summary-prefix** command in user EXEC or privileged EXEC mode.

show ipv6 ospf [*process_id*] **summary-prefix**

Syntax Description

process_id	(Optional) Specifies an internal ID that is locally assigned and can be any positive integer. This ID is the number assigned administratively when the OSPF routing process is enabled.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—
User EXEC	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Use this command to show a list of all summary address redistribution information that has been configured under an OSPFv3 process.

Examples

The following is sample output from the **show ipv6 ospf summary-prefix** command:

```
hostname# show ipv6 ospf summary-prefix

OSPFv3 Process 1, Summary-prefix

FEC0::/24 Metric 16777215, Type 0, Tag 0
```

Related Commands

Command	Description
show ipv6 ospf	Shows all IPv6 settings in the OSPFv3 routing process.
show ipv6 ospf border-routers	Shows the internal OSPFv3 routing table entries to an area border router (ABR) and an autonomous system boundary router (ASBR).

show ipv6 ospf timers

To display OSPFv3 timers information, use the **show ipv6 ospf timers** command in user EXEC or privileged EXEC mode.

show ipv6 ospf [*process_id*] **timers** [**lsa-group | rate-limit**]

Syntax Description

lsa-group	(Optional) Specifies OSPFv3 LSA group information.
process_id	(Optional) Specifies an internal ID that is locally assigned and can be any positive integer. This ID is the number assigned administratively when the OSPF routing process is enabled.
rate-limit	(Optional) Specifies OSPFv3 LSA rate limit information.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—
User EXEC	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Use this command to show LSA information that has been configured under an OSPFv3 process.

Examples

The following is sample output from the **show ipv6 ospf timers lsa-group** command:

```
hostname# show ipv6 ospf timers lsa-group

OSPFv3 Router with ID (10.10.13.101) (Process ID 1)

Group size 5, Head 2, Search Index 4, Interval 240 sec
Next update due in 0:00:13
Current time 96532
Index 0 Timestamp 96546
Index 1 Timestamp 96788
Index 2 Timestamp 97048
Index 3 Timestamp 97293
Index 4 Timestamp 97548

Failure Head 0, Last 0 LSA group failure logged
```

```
            OSPFv3 Router with ID (10.10.10.102) (Process ID 5709)

Group size 5, Head 2, Search Index 4, Interval 240 sec
Next update due in 0:00:22
Current time 96532
Index 0 Timestamp 96555
Index 1 Timestamp 96801
Index 2 Timestamp 97041
Index 3 Timestamp 97287
Index 4 Timestamp 97546

Failure Head 0, Last 0 LSA group failure logged
```

The following is sample output from the **show ipv6 ospf timers rate-limit** command:

```
hostname# show ipv6 ospf timers rate-limit

List of LSAs that are in rate limit Queue
```

Related Commands

Command	Description
show ipv6 ospf	Shows all IPv6 settings in the OSPFv3 routing process.
show ipv6 ospf border-routers	Shows the internal OSPFv3 routing table entries to an area border router (ABR) and an autonomous system boundary router (ASBR).

show ipv6 ospf traffic

To display OSPFv3 traffic-related statistics for currently available interfaces, use the **show ipv6 ospf traffic** command in user EXEC or privileged EXEC mode.

show ipv6 ospf [*process_id*] **traffic** [*interface_name*]

Syntax Description

interface_name	(Optional) Specifies the name of the interface (for example, interface GigabitEthernet0/0). Use this option to segregate traffic to a specific interface.
process_id	(Optional) Specifies an internal ID that is locally assigned and can be any positive integer. This ID is the number assigned administratively when the OSPF routing process is enabled.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—
User EXEC	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Use this command to show OSPFv3 traffic-related information for available interfaces.

Examples

The following is sample output from the **show ipv6 ospf traffic** command:

```
hostname# show ipv6 ospf 10 traffic inside

Interface inside

Last clearing of interface traffic counters never

OSPFv3 packets received/sent
  Type          Packets               Bytes
  RX Invalid                      0 0
  RX Hello                     1232 53132
  RX DB des                      27 896
  RX LS req                       3 216
  RX LS upd                      28 2436
```

```
RX LS ack                        14 1064
RX Total                       1304 57744

TX Failed                         0 0
TX Hello                        753 32072
TX DB des                        27 1056
TX LS req                         2 92
TX LS upd                         9 1128
TX LS ack                        15 900
TX Total                        806 35248
```

Related Commands

Command	Description
show ipv6 ospf	Shows all IPv6 settings in the OSPFv3 routing process.
show ipv6 ospf border-routers	Shows the internal OSPFv3 routing table entries to an area border router (ABR) and an autonomous system boundary router (ASBR).

show ipv6 ospf virtual-links

To displayparameters and the current state of OSPFv3 virtual links, use the **show ipv6 ospf virtual-links** command in user EXEC or privileged EXEC mode.

show ipv6 ospf virtual-links

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—
User EXEC	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Use this command to show parameters and the current state of OSPFv3 virtual links.

Examples

The following is sample output from the **show ipv6 ospf virtual-links** command:

```
hostname# show ipv6 ospf virtual-links

Virtual Link OSPF_VL0 to router 172.16.6.6 is up
  Interface ID 27, IPv6 address FEC0:6666:6666::
  Run as demand circuit
  DoNotAge LSA allowed.
  Transit area 2, via interface ATM3/0, Cost of using 1
  Transmit Delay is 1 sec, State POINT_TO_POINT,
  Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
    Hello due in 00:00:06
```

Related Commands

Command	Description
show ipv6 ospf	Shows all IPv6 settings in the OSPFv3 routing process.
show ipv6 ospf border-routers	Shows the internal OSPFv3 routing table entries to an area border router (ABR) and an autonomous system boundary router (ASBR).

show ipv6 route

To display the contents of the IPv6 routing table, use the **show ipv6 route** command in privileged EXEC mode.

show ipv6 route [**failover**] [**cluster**] [**interface**] [**ospf**] [**summary**]

Syntax Description

cluster	(Optional) Displays the IPv6 routing table sequence number, IPv6 reconvergence timer status, and IPv6 routing entries sequence number in a cluster.
failover	(Optional) Displays the IPv6 routing table sequence number, IPv6 reconvergence timer status, and IPv6 routing entries sequence number.
interface	(Optional) Displays IPv6 interface-specific routes.
ospf	(Optional) Displays OSPFv3 routes.
summary	(Optional) Displays IPv6 route summaries.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Added support for the **failover, cluster, ospf, interface,** and **summary** keywords.

Usage Guidelines

The **show ipv6 route** command provides output similar to the **show route** command, except that the information is IPv6-specific.

The following information appears in the IPv6 routing table:

- Codes—Indicates the protocol that derived the route. Values are as follows:
  - C—Connected
  - L—Local
  - S—Static
  - R—RIP derived
  - B—BGP derived
  - I1—ISIS L1—Integrated IS-IS Level 1 derived

  - I2—ISIS L2—Integrated IS-IS Level 2 derived
  - IA—ISIS interarea—Integrated IS-IS interarea derived
- fe80::/10—Indicates the IPv6 prefix of the remote network.
- [0/0]—The first number in the brackets is the administrative distance of the information source; the second number is the metric for the route.
- via ::—Specifies the address of the next router to the remote network.
- inside—Specifies the interface through which the next router to the specified network can be reached.

Note The **clustering** and **failover** keywords do not appear unless these features are configured on the ASA.

Examples

The following is sample output from the **show ipv6 route** command:

```
hostname# show ipv6 route

IPv6 Routing Table - 7 entries
Codes: C - Connected, L - Local, S - Static, R - RIP, B - BGP
       U - Per-user Static route
       I1 - ISIS L1, I2 - ISIS L2, IA - ISIS interarea
       O - OSPF intra, OI - OSPF inter, OE1 - OSPF ext 1, OE2 - OSPF ext 2
L   fe80::/10 [0/0]
     via ::, inside
     via ::, vlan101
L   fec0::a:0:0:a0a:a70/128 [0/0]
     via ::, inside
C   fec0:0:0:a::/64 [0/0]
     via ::, inside
L   fec0::65:0:0:a0a:6570/128 [0/0]
     via ::, vlan101
C   fec0:0:0:65::/64 [0/0]
     via ::, vlan101
L   ff00::/8 [0/0]
     via ::, inside
     via ::, vlan101
S   ::/0 [0/0]
     via fec0::65:0:0:a0a:6575, vlan101
```

The following is sample output from the **show ipv6 route failover** command:

```
hostname# show ipv6 route failover

IPv6 Routing Table - 6 entries
Codes: C - Connected, L - Local, S - Static
       O - OSPF intra, OI - OSPF inter, OE1 - OSPF ext 1, OE2 - OSPF ext 2
           ON1 - OSPF NSSA ext 1, ON2 - OSPF NSSA ext 2
IPv6 Routing table seq num 0
IPv6 Reconvergence timer expired

O   2009::1/128 [110/10]
     via fe80::217:94ff:fe85:4401, inside seq 0
OE2  2011::/64 [110/20]
     via fe80::217:94ff:fe85:4401, inside seq 0
S   4001::1/128 [0/0]
     via 4001::2, inside seq 0
C   7001::1/128 [0/0]
     via ::, outside seq 0
```

```
L   fe80::/10 [0/0]
     via ::, inside seq 0
     via ::, outside seq 0
L   ff00::/8 [0/0]
     via ::, inside seq 0
     via ::, outside seq 0
```

The following is sample output from the **show ipv6 route cluster** command on the master unit:

```
hostname/LB1/master(config)# show ipv6 route cluster

IPv6 Routing Table - 5 entries
Codes: C - Connected, L - Local, S - Static
       O - OSPF intra, OI - OSPF inter, OE1 - OSPF ext 1, OE2 - OSPF ext 2
            ON1 - OSPF NSSA ext 1, ON2 - OSPF NSSA ext 2
IPv6 Routing table seq num 2
IPv6 Reconvergence timer expired

OE2  2001::/58 [110/20]
     via fe80::21f:9eff:fe2a:78ba, inside seq 2
...
```

The following is sample output from the **show ipv6 route cluster** command on the slave unit during a role change:

```
hostname/LB2/slave(config)# cluster master
INFO: Wait for existing master to quit. Use "show cluster info"
to check status. Use "cluster remove unit <name>" to force
master unit out of the cluster if for some reason it refuses
to quit within reasonable time
hostname/LB2/slave(config)#
hostname/LB2/master(config)#
hostname/LB2/master(config)# show ipv6 route cluster

IPv6 Routing Table - 5 entries
Codes: C - Connected, L - Local, S - Static
       O - OSPF intra, OI - OSPF inter, OE1 - OSPF ext 1, OE2 - OSPF ext 2
            ON1 - OSPF NSSA ext 1, ON2 - OSPF NSSA ext 2
IPv6 Routing table seq num 3
IPv6 Reconvergence timer expires in 61 secs

OE2  2001::/58 [110/20]
     via fe80::21f:9eff:fe2a:78ba, inside seq 2
...
```

Related Commands

Command	Description
debug ipv6 route	Displays debugging messages for IPv6 routing table updates and route cache updates.
ipv6 route	Adds a static entry to the IPv6 routing table.

show ipv6 routers

To display IPv6 router advertisement information received from on-link routers, use the **show ipv6 routers** command in privileged EXEC mode.

show ipv6 routers [*if_name*]

Syntax Description

if_name	(Optional) The internal or external interface name, as designated by the **nameif** command, that you want to display information about.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

When an interface name is not specified, information on all IPv6 interfaces is displayed. Specifying an interface name displays information about the specified interface.

Examples

The following is sample output from the **show ipv6 routers** command when entered without an interface name:

```
hostname# show ipv6 routers
Router FE80::83B3:60A4 on outside, last update 3 min
  Hops 0, Lifetime 6000 sec, AddrFlag=0, OtherFlag=0
  Reachable time 0 msec, Retransmit time 0 msec
  Prefix 3FFE:C00:8007::800:207C:4E37/96 autoconfig
    Valid lifetime -1, preferred lifetime -1
Router FE80::290:27FF:FE8C:B709 on inside, last update 0 min
  Hops 64, Lifetime 1800 sec, AddrFlag=0, OtherFlag=0
  Reachable time 0 msec, Retransmit time 0 msec
```

Related Commands

Command	Description
ipv6 route	Adds a static entry to the IPv6 routing table.

show ipv6 traffic

To display statistics about IPv6 traffic, use the **show ipv6 traffic** command in privileged EXEC mode.

show ipv6 traffic

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Use the **clear ipv6 traffic** command to clear the traffic counters.

Examples

The following is sample output from the **show ipv6 traffic** command:

```
hostname# show ipv6 traffic
IPv6 statistics:
  Rcvd:  545 total, 545 local destination
         0 source-routed, 0 truncated
         0 format errors, 0 hop count exceeded
         0 bad header, 0 unknown option, 0 bad source
         0 unknown protocol, 0 not a router
         218 fragments, 109 total reassembled
         0 reassembly timeouts, 0 reassembly failures
  Sent:  228 generated, 0 forwarded
         1 fragmented into 2 fragments, 0 failed
         0 encapsulation failed, 0 no route, 0 too big
  Mcast: 168 received, 70 sent

ICMP statistics:
  Rcvd: 116 input, 0 checksum errors, 0 too short
        0 unknown info type, 0 unknown error type
        unreach: 0 routing, 0 admin, 0 neighbor, 0 address, 0 port
        parameter: 0 error, 0 header, 0 option
        0 hopcount expired, 0 reassembly timeout,0 too big
        0 echo request, 0 echo reply
        0 group query, 0 group report, 0 group reduce
```

```
        0 router solicit, 60 router advert, 0 redirects
        31 neighbor solicit, 25 neighbor advert
  Sent: 85 output, 0 rate-limited
        unreach: 0 routing, 0 admin, 0 neighbor, 0 address, 0 port
        parameter: 0 error, 0 header, 0 option
        0 hopcount expired, 0 reassembly timeout,0 too big
        0 echo request, 0 echo reply
        0 group query, 0 group report, 0 group reduce
        0 router solicit, 18 router advert, 0 redirects
        33 neighbor solicit, 34 neighbor advert

UDP statistics:
  Rcvd: 109 input, 0 checksum errors, 0 length errors
        0 no port, 0 dropped
  Sent: 37 output

TCP statistics:
  Rcvd: 85 input, 0 checksum errors
  Sent: 103 output, 0 retransmitted
```

Related Commands

Command	Description
clear ipv6 traffic	Clears IPv6 traffic counters.

CHAPTER 51

show isakmp ipsec-over-tcp stats through show ospf virtual-links Commands

show isakmp ipsec-over-tcp stats

To display runtime statistics for IPsec over TCP, use the **show isakmp ipsec-over tcp stats** command in global configuration mode or privileged EXEC mode.

show isakmp ipsec-over-tcp stats

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	The **show isakmp ipsec-over-tcp stats** command was introduced.
7.2(1)	The **show isakmp ipsec-over-tcp stats** command was deprecated. The **show crypto isakmp ipsec-over-tcp stats** command replaces it.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

The output from this command includes the following fields:

- Embryonic connections
- Active connections
- Previous connections
- Inbound packets
- Inbound dropped packets
- Outbound packets
- Outbound dropped packets
- RST packets
- Received ACK heart-beat packets
- Bad headers
- Bad trailers
- Timer failures

- Checksum errors
- Internal errors

Examples

The following example, issued in global configuration mode, displays ISAKMP statistics:

```
hostname(config)# show isakmp ipsec-over-tcp stats
Global IPsec over TCP Statistics
--------------------------------
Embryonic connections: 2
Active connections: 132
Previous connections: 146
Inbound packets: 6000
Inbound dropped packets: 30
Outbound packets: 0
Outbound dropped packets: 0
RST packets: 260
Received ACK heart-beat packets: 10
Bad headers: 0
Bad trailers: 0
Timer failures: 0
Checksum errors: 0
Internal errors: 0
hostname(config)#
```

Related Commands

Command	Description
clear configure crypto isakmp	Clears all the ISAKMP configuration.
clear configure crypto isakmp policy	Clears all ISAKMP policy configuration.
clear crypto isakmp sa	Clears the IKE runtime SA database.
crypto isakmp enable	Enables ISAKMP negotiation on the interface on which the IPsec peer communicates with the ASA.
show running-config crypto isakmp	Displays all the active ISAKMP configuration.

show isakmp sa

To display the IKE runtime SA database, use the **show isakmp sa** command in global configuration mode or privileged EXEC mode.

show isakmp sa [**detail**]

Syntax Description

detail	Displays detailed output about the SA database.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	—	•	•	—
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	The **show isakmp sa** command was introduced.
7.2(1)	This command was deprecated. The **show crypto isakmp sa** command replaces it.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

The output from this command includes the following fields:

Detail not specified.

IKE Peer	Type	Dir	Rky	State
209.165.200.225	L2L	Init	No	MM_Active

Detail specified.

IKE Peer	Type	Dir	Rky	State	Encrypt	Hash	Auth	Lifetime
209.165.200.225	L2L	Init	No	MM_Active	3des	md5	preshrd	86400

Examples

The following example, entered in global configuration mode, displays detailed information about the SA database:

```
hostname(config)# show isakmp sa detail

IKE Peer  Type  Dir   Rky  State      Encrypt Hash  Auth    Lifetime
1 209.165.200.225 User  Resp  No   AM_Active  3des    SHA   preshrd 86400

IKE Peer  Type  Dir   Rky  State      Encrypt Hash  Auth    Lifetime
2 209.165.200.226 User  Resp  No   AM_ACTIVE  3des    SHA   preshrd 86400

IKE Peer  Type  Dir   Rky  State      Encrypt Hash  Auth    Lifetime
3 209.165.200.227 User  Resp  No   AM_ACTIVE  3des    SHA   preshrd 86400

IKE Peer  Type  Dir   Rky  State      Encrypt Hash  Auth    Lifetime
4 209.165.200.228 User  Resp  No   AM_ACTIVE  3des    SHA   preshrd 86400

hostname(config)#
```

Related Commands

Command	Description
clear configure isakmp	Clears all the ISAKMP configuration.
clear configure isakmp policy	Clears all ISAKMP policy configuration.
clear isakmp sa	Clears the IKE runtime SA database.
isakmp enable	Enables ISAKMP negotiation on the interface on which the IPsec peer communicates with the ASA.
show running-config isakmp	Displays all the active ISAKMP configuration.

show isakmp stats

To display runtime statistics, use the **show isakmp stats** command in global configuration mode or privileged EXEC mode.

show isakmp stats

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	The **show isakmp stats** command was introduced.
7.2(1)	This command was deprecated. The **show crypto isakmp stats** command replaces it.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

Each one of the counters maps to an associated cikePhase1GW counter. For details on each of these counters, refer to CISCO-IPSEC-FLOW-MONITOR-MIB.my.

- Active/Standby Tunnels—cikePhase1GWActiveTunnels
- Previous Tunnels—cikePhase1GWPreviousTunnels
- In Octets—cikePhase1GWInOctets
- In Packets—cikePhase1GWInPkts
- In Drop Packets—cikePhase1GWInDropPkts
- In Notifys—cikePhase1GWInNotifys
- In P2 Exchanges—cikePhase1GWInP2Exchgs
- In P2 Exchange Invalids—cikePhase1GWInP2ExchgInvalids
- In P2 Exchange Rejects—cikePhase1GWInP2ExchgRejects
- In P2 Sa Delete Requests—cikePhase1GWInP2SaDelRequests
- Out Octets—cikePhase1GWOutOctets

- Out Packets—cikePhase1GWOutPkts
- Out Drop Packets—cikePhase1GWOutDropPkts
- Out Notifys—cikePhase1GWOutNotifys
- Out P2 Exchanges—cikePhase1GWOutP2Exchgs
- Out P2 Exchange Invalids—cikePhase1GWOutP2ExchgInvalids
- Out P2 Exchange Rejects—cikePhase1GWOutP2ExchgRejects
- Out P2 Sa Delete Requests—cikePhase1GWOutP2SaDelRequests
- Initiator Tunnels—cikePhase1GWInitTunnels
- Initiator Fails—cikePhase1GWInitTunnelFails
- Responder Fails—cikePhase1GWRespTunnelFails
- System Capacity Fails—cikePhase1GWSysCapFails
- Auth Fails—cikePhase1GWAuthFails
- Decrypt Fails—cikePhase1GWDecryptFails
- Hash Valid Fails—cikePhase1GWHashValidFails
- No Sa Fails—cikePhase1GWNoSaFails

The output from this command includes the following fields:

- Global IKE Statistics
- Active Tunnels
- In Octets
- In Packets
- In Drop Packets
- In Notifys
- In P2 Exchanges
- In P2 Exchange Invalids
- In P2 Exchange Rejects
- In P2 Sa Delete Requests
- Out Octets
- Out Packets
- Out Drop Packets
- Out Notifys
- Out P2 Exchanges
- Out P2 Exchange Invalids
- Out P2 Exchange Rejects
- Out P2 Sa Delete Requests
- Initiator Tunnels
- Initiator Fails
- Responder Fails
- System Capacity Fails

- Auth Fails
- Decrypt Fails
- Hash Valid Fails
- No Sa Fails

Examples

The following example, issued in global configuration mode, displays ISAKMP statistics:

```
hostname(config)# show isakmp stats
Global IKE Statistics
Active Tunnels: 132
Previous Tunnels: 132
In Octets: 195471
In Packets: 1854
In Drop Packets: 925
In Notifys: 0
In P2 Exchanges: 132
In P2 Exchange Invalids: 0
In P2 Exchange Rejects: 0
In P2 Sa Delete Requests: 0
Out Octets: 119029
Out Packets: 796
Out Drop Packets: 0
Out Notifys: 264
Out P2 Exchanges: 0
Out P2 Exchange Invalids: 0
Out P2 Exchange Rejects: 0
Out P2 Sa Delete Requests: 0
Initiator Tunnels: 0
Initiator Fails: 0
Responder Fails: 0
System Capacity Fails: 0
Auth Fails: 0
Decrypt Fails: 0
Hash Valid Fails: 0
No Sa Fails: 0
hostname(config)#
```

Related Commands

Command	Description
clear configure isakmp	Clears all the ISAKMP configuration.
clear configure isakmp policy	Clears all ISAKMP policy configuration.
clear isakmp sa	Clears the IKE runtime SA database.
isakmp enable	Enables ISAKMP negotiation on the interface on which the IPsec peer communicates with the ASA.
show running-config isakmp	Displays all the active ISAKMP configuration.

show kernel

To display information that the Linux brctl utility provides that you can use for debugging, use the **show kernel** command in privileged EXEC mode.

show kernel [process | bridge | cgroup-controller | ifconfig | module]

Syntax Description

bridge	Displays tap bridges.
cgroup-controller	Displays the cgroup-controller statistics.
ifconfig	Displays the tap and bridge interface statistics.
module	Displays the modules that are installed and running.
process	Displays the current status of the active kernel processes running on the ASA.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
8.0(2)	This command was introduced.
8.4(1)	The **cgroup-controller** keyword was added.
8.6(1)	The **ifconfig**, **module**, and **bridge** keywords were added.

Usage Guidelines

This command displays statistics for the various processes running on the kernel.

Examples

The following example displays output from the **show kernel process** command:

```
hostname# show kernel process

PID PPID PRI NI      VSIZE      RSS      WCHAN STAT  RUNTIME COMMAND
  1    0  16  0     991232      268 3725684979    S       78 init
  2    1  34 19          0        0 3725694381    S        0 ksoftirqd/0
  3    1  10 -5          0        0 3725736671    S        0 events/0
  4    1  20 -5          0        0 3725736671    S        0 khelper
  5    1  20 -5          0        0 3725736671    S        0 kthread
  7    5  10 -5          0        0 3725736671    S        0 kblockd/0
  8    5  20 -5          0        0 3726794334    S        0 kseriod
```

```
 66     5  20  0           0        0 3725811768     S         0 pdflush
 67     5  15  0           0        0 3725811768     S         0 pdflush
 68     1  15  0           0        0 3725824451     S         2 kswapd0
 69     5  20 -5           0        0 3725736671     S         0 aio/0
171     1  16  0      991232       80 3725684979     S         0 init
172   171  19  0      983040      268 3725684979     S         0 rcS
201   172  21  0     1351680      344 3725712932     S         0 lina_monitor
202   201  16  0 1017602048   899932 3725716348     S       212 lina
203   202  16  0 1017602048   899932           0     S         0 lina
204   203  15  0 1017602048   899932           0     S         0 lina
205   203  15  0 1017602048   899932 3725712932     S         6 lina
206   203  25  0 1017602048   899932           0     R 13069390 lina
hostname#
```

Table 51-1 shows each field description.

Table 51-1 show kernel process Fields

Field	Description
PID	The process ID.
PPID	The parent process ID.
PRI	The priority of the process.
NI	The nice value, which is used in priority computation. The values range from 19 (nicest) to -19 (not nice to others),
VSIZE	The virtual memory size in bytes.
RSS	The resident set size of the process, in kilobytes.
WCHAN	The channel in which the process is waiting.
STAT	The state of the process: • R—Running • S—Sleeping in an interruptible wait • D—Waiting in an uninterruptible disk sleep • Z—zombie • T—Traced or stopped (on a signal) • P—Paging
RUNTIME	The number of jiffies that the process has been scheduled in user mode and kernel mode. The runtime is the sum of utime and stime.
COMMAND	The process name.

The following example displays output from the **show kernel module** command:

```
hostname# show kernel module

Module                  Size  Used by    Tainted: P
cpp_base              861808  2
kvm_intel              44104  8
kvm                   174304  1 kvm_intel
msrif                   4180  0
tscsync                 3852  0
```

The following example displays output for the **show kernel ifconfig** commands:

```
hostname# show kernel ifconfig

br0       Link encap:Ethernet  HWaddr 42:9E:B8:6C:1F:23
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:43 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:1708 (1.6 KiB)  TX bytes:0 (0.0 B)

br1       Link encap:Ethernet  HWaddr 6A:03:EC:BA:89:26
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.255.255.255
          UP LOOPBACK RUNNING  MTU:16436  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

tap0      Link encap:Ethernet  HWaddr 6A:0C:48:32:FE:F4
          inet addr:127.0.2.2  Bcast:127.255.255.255  Mask:255.0.0.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:148 errors:0 dropped:0 overruns:0 frame:0
          TX packets:186 errors:0 dropped:13 overruns:0 carrier:0
          collisions:0 txqueuelen:500
          RX bytes:10320 (10.0 KiB)  TX bytes:12452 (12.1 KiB)

tap1      Link encap:Ethernet  HWaddr 8E:E7:61:CF:E9:BD
          UP BROADCAST RUNNING PROMISC MULTICAST  MTU:1500  Metric:1
          RX packets:259 errors:0 dropped:0 overruns:0 frame:0
          TX packets:187 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:500
          RX bytes:19368 (18.9 KiB)  TX bytes:14638 (14.2 KiB)

tap2      Link encap:Ethernet  HWaddr 6A:03:EC:BA:89:26
          UP BROADCAST RUNNING PROMISC MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:500
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

tap3      Link encap:Ethernet  HWaddr 42:9E:B8:6C:1F:23
          UP BROADCAST RUNNING PROMISC MULTICAST  MTU:1500  Metric:1
          RX packets:187 errors:0 dropped:0 overruns:0 frame:0
          TX packets:256 errors:0 dropped:3 overruns:0 carrier:0
          collisions:0 txqueuelen:500
          RX bytes:14638 (14.2 KiB)  TX bytes:19202 (18.7 KiB)

tap4      Link encap:Ethernet  HWaddr 6A:5C:60:BC:9C:ED
          UP BROADCAST RUNNING PROMISC MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:500
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)
```

Related Commands

Command	Description
show module	Shows information about the installed modules in the ASA.

show kernel bridge

To display the Linux bridges, their member ports, and MAC addresses that have been learned at each port that you can use for debugging, use the **show kernel bridge** command in privileged EXEC mode.

show kernel bridge [**mac-address** *bridge name*]

Syntax Description

bridge name	Displays the bridge name.
mac-address	Displays the MAC address associated with each port.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
8.6(1)	This command was introduced.

Usage Guidelines

This command shows the Linux bridges, their member ports, and the MAC addresses that have been learned at each port (including remote MAC addresses) that you can use for debugging.

Examples

The following example displays output from the **show kernel bridge** command:

```
hostname# show kernel bridge

bridge name    bridge id        STP enabled interfaces
br0        8000.0e3cd8a8909f    no        tap1
                                tap3
br1       8000.26d29f51a490     no        tap2
                                tap4
                                tap5hostname#
```

The following example displays output from the **show kernel bridge mac-address** command:

```
hostname# show kernel bridge mac-address br1

port no    mac addr       is local?   ageing timer
 1    00:21:d8:cb:dc:f7    no          12.93
 3    00:22:bd:d8:7d:da    no          12.93
 2    26:d2:9f:51:a4:90    yes          0.00
 1    4e:a4:e0:73:1f:ab    yes          0.00
```

```
3     52:04:38:3d:79:c0    yes          0.00
```

Related Commands

Command	Description
show kernel	Shows information about the installed modules in the ASA.

show lacp

To display EtherChannel LACP information such as traffic statistics, system identifier, and neighbor details, enter this command in privileged EXEC mode.

show lacp {[*channel_group_number*] {**counters** | **internal** | **neighbor**} | **sys-id**}

Syntax Description

channel_group_number	(Optional) Specifies the EtherChannel channel group number, between 1 and 48, and only shows information about this channel group.
counters	Shows counters for the number of LACPDUs and markers sent and received.
internal	Shows internal information.
neighbor	Shows neighbor information.
sys-id	Shows the LACP system ID.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
8.4(1)	We introduced this command.

Examples

The following is sample output from the **show lacp sys-id** command:

```
hostname# show lacp sys-id
32768,001c.c4e5.cfee
```

The following is sample output from the **show lacp counters** command:

```
hostname# show lacp counters

              LACPDUs         Marker      Marker Response    LACPDUs
Port        Sent   Recv     Sent   Recv     Sent    Recv      Pkts Err
--------------------------------------------------------------------
Channel group: 1
Gi3/1       736    728      0      0        0       0         0
Gi3/2       739    730      0      0        0       0         0
Gi3/3       739    732      0      0        0       0         0
```

The following is sample output from the **show lacp internal** command:

```
hostname# show lacp internal
```

```
Flags:  S - Device is requesting Slow LACPDUs
        F - Device is requesting Fast LACPDUs
        A - Device is in Active mode       P - Device is in Passive mode

Channel group 1
                            LACP port     Admin     Oper    Port        Port
Port      Flags   State     Priority      Key       Key     Number      State
--------------------------------------------------------------------------------
Gi3/1     SA      bndl      32768         0x1       0x1     0x302       0x3d
Gi3/2     SA      bndl      32768         0x1       0x1     0x303       0x3d
Gi3/3     SA      bndl      32768         0x1       0x1     0x304       0x3d
```

The following is sample output from the **show lacp neighbor** command:

```
hostname# show lacp neighbor

Flags:  S - Device is requesting Slow LACPDUs
        F - Device is requesting Fast LACPDUs
        A - Device is in Active mode       P - Device is in Passive mode

Channel group 1 neighbors

Partner's information:
          Partner Partner    LACP Partner  Partner   Partner  Partner     Partner
Port      Flags   State      Port Priority Admin Key Oper Key Port Number Port State
--------------------------------------------------------------------------------
Gi3/1     SA      bndl       32768         0x0       0x1      0x306       0x3d
Gi3/2     SA      bndl       32768         0x0       0x1      0x303       0x3d
Gi3/3     SA      bndl       32768         0x0       0x1      0x302       0x3d
```

Related Commands

Command	Description
channel-group	Adds an interface to an EtherChannel.
interface port-channel	Configures an EtherChannel.
lacp max-bundle	Specifies the maximum number of active interfaces allowed in the channel group.
lacp port-priority	Sets the priority for a physical interface in the channel group.
lacp system-priority	Sets the LACP system priority.
port-channel load-balance	Configures the load-balancing algorithm.
port-channel min-bundle	Specifies the minimum number of active interfaces required for the port-channel interface to become active.
show port-channel	Displays EtherChannel information in a detailed and one-line summary form. This command also displays the port and port-channel information.
show port-channel load-balance	Displays port-channel load-balance information along with the hash result and member interface selected for a given set of parameters.

show lacp cluster

To show the cLACP system MAC and ID, use the **show lacp cluster** command in privileged EXEC mode.

show lacp cluster {**system-mac** | **system-id**}

Syntax Description

system-mac	Shows the system ID and whether it was auto-generated or entered manually.
system-id	Shows the system ID and priority.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

Set the cLACP system ID and priority using the **clacp system-mac** command.

Examples

The following is sample output from the **show lacp cluster system-mac** command:

```
hostname(cfg-cluster)# show lacp cluster system-mac
lacp cluster system MAC is automatically generated: a300.010a.010a.
```

The following is sample output from the **show lacp cluster system-id** command:

```
hostname(cfg-cluster)# show lacp cluster system-id
5    ,a300.010a.010a
```

Related Commands

Command	Description
clacp system-mac	Sets the cLACP system ID and priority.

show local-host

To display the network states of local hosts, use the **show local-host** command in privileged EXEC mode.

show local-host | include interface [*ip_address*] [**detail**] [**all**][**brief**] [**connection** {**tcp** *start*[*-end*] | **udp** *start*[*-end*] | **embryonic** *start*[*-end*]}]

Syntax Description

all	(Optional) Includes local hosts connecting to the ASA and from the ASA.
brief	(Optional) Displays brief information on local hosts.
connection	(Optional) Displays three types of filters based on the number and type of connections: TCP, UDP and embryonic. These filters can be used individually or jointly.
detail	(Optional) Displays the detailed network states of local host information, including more information about active xlates and network connections.
include interface	Specifies the IP addresses being used on each interface.
ip_address	(Optional) Specifies the local host IP address.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.2(1)	For models with host limits, this command now shows which interface is considered to be the outside interface.
7.2(4)	Two new options, **connection** and **brief**, were added to the **show local-host** command so that the output is filtered by the number of connections for the inside hosts.
9.1(2)	The Smart Call Home information sent to Cisco for telemetry-based alerts from the **show local-host** command has been changed to the **show local-host	include interface** command.

Usage Guidelines

The **show local-host** command lets you display the network states of local hosts. A local-host is created for any host that forwards traffic to, or through, the ASA.

This command lets you show the translation and connection slots for the local hosts. This command provides information for hosts that are configured with the **nat 0 access-list** command when normal translation and connection states may not apply.

This command also displays the connection limit values. If a connection limit is not set, the value displays as 0 and the limit is not applied.

For models with host limits, In routed mode, hosts on the inside (Work and Home zones) count towards the limit only when they communicate with the outside (Internet zone). Internet hosts are not counted towards the limit. Hosts that initiate traffic between Work and Home are also not counted towards the limit. The interface associated with the default route is considered to be the Internet interface. If there is no default route, hosts on all interfaces are counted toward the limit. In transparent mode, the interface with the lowest number of hosts is counted towards the host limit.

In the event of a SYN attack (with TCP intercept configured), the **show local-host** command output includes the number of intercepted connections in the usage count. This field typically displays only full open connections.

In the **show local-host** command output, the **TCP embryonic count to host counter** is used when a maximum embryonic limit (TCP intercept watermark) is configured for a host using a static connection. This counter shows the total embryonic connections to the host from other hosts. If this total exceeds the maximum configured limit, TCP intercept is applied to new connections to the host.

Examples

The following is sample output from the **show local-host** command:

```
hostname# show local-host
Interface inside: 0 active, 0 maximum active, 0 denied
Interface outside: 1 active, 2 maximum active, 0 denied
```

The following is sample output from the **show local-host** command on an ASA with host limits:

```
hostname# show local-host
Detected interface 'outside' as the Internet interface. Host limit applies to all other
interfaces.

Current host count: 3, towards licensed host limit of: 50

Interface inside: 1 active, 1 maximum active, 0 denied
Interface outside: 0 active, 0 maximum active, 0 denied
```

The following is sample output from the **show local-host** command on an ASA with host limits. But without a default route, the host limits apply to all interfaces. The default route interface might not be detected if the default route or the interface that the route uses is down.

```
hostname# show local-host
Unable to determine Internet interface from default route. Host limit applied to all
interfaces.

Current host count: 3, towards licensed host limit of: 50

Interface c1in: 1 active, 1 maximum active, 0 denied
Interface c1out: 0 active, 0 maximum active, 0 denied
```

The following is sample output from the **show local-host** command on an ASA with unlimited hosts:

```
hostname# show local-host
Licensed host limit: Unlimited

Interface c1in: 1 active, 1 maximum active, 0 denied
Interface c1out: 0 active, 0 maximum active, 0 denied
```

The following examples show the network states of local hosts:

```
hostname# show local-host all
Interface outside: 1 active, 2 maximum active, 0 denied
local host: <11.0.0.4>,
TCP flow count/limit = 0/unlimited
TCP embryonic count to host = 0
TCP intercept watermark = unlimited
UDP flow count/limit = 0/unlimited
Conn:
105 out 11.0.0.4 in 11.0.0.3 idle 0:01:42 bytes 4464
105 out 11.0.0.4 in 11.0.0.3 idle 0:01:44 bytes 4464
Interface inside: 1 active, 2 maximum active, 0 denied
local host: <17.3.8.2>,
TCP flow count/limit = 0/unlimited
TCP embryonic count to host = 0
TCP intercept watermark = unlimited
UDP flow count/limit = 0/unlimited
Conn:
105 out 17.3.8.2 in 17.3.8.1 idle 0:01:42 bytes 4464
105 out 17.3.8.2 in 17.3.8.1 idle 0:01:44 bytes 4464
Interface NP Identity Ifc: 2 active, 4 maximum active, 0 denied
local host: <11.0.0.3>,
TCP flow count/limit = 0/unlimited
TCP embryonic count to host = 0
TCP intercept watermark = unlimited
UDP flow count/limit = 0/unlimited
Conn:
105 out 11.0.0.4 in 11.0.0.3 idle 0:01:44 bytes 4464
105 out 11.0.0.4 in 11.0.0.3 idle 0:01:42 bytes 4464
local host: <17.3.8.1>,
TCP flow count/limit = 0/unlimited
TCP embryonic count to host = 0
TCP intercept watermark = unlimited
UDP flow count/limit = 0/unlimited
Conn:
105 out 17.3.8.2 in 17.3.8.1 idle 0:01:44 bytes 4464
105 out 17.3.8.2 in 17.3.8.1 idle 0:01:42 bytes 4464

hostname# show local-host 10.1.1.91
Interface third: 0 active, 0 maximum active, 0 denied
Interface inside: 1 active, 1 maximum active, 0 denied
local host: <10.1.1.91>,
TCP flow count/limit = 1/unlimited
TCP embryonic count to (from) host = 0 (0)
TCP intercept watermark = unlimited
UDP flow count/limit = 0/unlimited

Xlate:
PAT Global 192.150.49.1(1024) Local 10.1.1.91(4984)

Conn:
TCP out 192.150.49.10:21 in 10.1.1.91:4984 idle 0:00:07 bytes 75 flags UI Interface
outside: 1 active, 1 maximum active, 0 denied

hostname# show local-host 10.1.1.91 detail
Interface third: 0 active, 0 maximum active, 0 denied
Interface inside: 1 active, 1 maximum active, 0 denied
local host: <10.1.1.91>,
TCP flow count/limit = 1/unlimited
TCP embryonic count to (from) host = 0 (0)
TCP intercept watermark = unlimited
UDP flow count/limit = 0/unlimited
```

```
Xlate:
TCP PAT from inside:10.1.1.91/4984 to outside:192.150.49.1/1024 flags ri

Conn:
TCP outside:192.150.49.10/21 inside:10.1.1.91/4984 flags UI Interface outside: 1 active, 1
maximum active, 0 denied
```

The following example shows all hosts who have at least four UDP connections and have between one to 10 TCP connections at the same time:

```
hostname# show local-host connection udp 4 tcp 1-10
Interface mng: 0 active, 3 maximum active, 0 denied
Interface INSIDE: 4 active, 5 maximum active, 0 denied
local host: <10.1.1.11>,
       TCP flow count/limit = 1/unlimited TCP embryonic count to host = 0 TCP intercept
       watermark = unlimited UDP flow count/limit = 4/unlimited
Xlate:
       Global 192.168.1.24 Local 10.1.1.11 Conn: UDP out 192.168.1.10:80 in
       10.1.1.11:1730 idle 0:00:21 bytes 0 flags - UDP out 192.168.1.10:80 in
       10.1.1.11:1729 idle 0:00:22 bytes 0 flags - UDP out 192.168.1.10:80 in
       10.1.1.11:1728 idle 0:00:23 bytes 0 flags - UDP out 192.168.1.10:80 in
       10.1.1.11:1727 idle 0:00:24 bytes 0 flags - TCP out 192.168.1.10:22 in
       10.1.1.11:27337 idle 0:01:55 bytes 2641 flags UIO Interface OUTSIDE: 3 active, 5
       maximum active, 0 denied
```

The following example shows local-host addresses and connection counters using the **brief** option:

```
hostname# show local-host connection udp 2
Interface mng: 0 active, 3 maximum active, 0 denied
Interface INSIDE: 4 active, 5 maximum active, 0 denied
local host: <10.1.1.11>,
       TCP flow count/limit = 1/unlimited
       TCP embryonic count to host = 0
       TCP intercept watermark = unlimited UDP flow count/limit = 4/unlimited
Interface OUTSIDE: 3 active, 5 maximum active, 0 denied
```

The following examples shows the output when using the **brief** and **connection** options:

```
hostname# show local-host brief
Interface inside: 1 active, 1 maximum active, 0 denied
Interface outside: 1 active, 1 maximum active, 0 denied
Interface mgmt: 5 active, 6 maximum active, 0 denied

hostname# show local-host connection
Interface inside: 1 active, 1 maximum active, 0 denied
Interface outside: 1 active, 1 maximum active, 0 denied
Interface mgmt: 5 active, 6 maximum active, 0 denied
```

Related Commands

Command	Description
clear local-host	Releases network connections from local hosts displayed by the **show local-host** command.
nat	Associates a network with a pool of global IP addresses.

show logging

To show the logs in the buffer or other logging settings, use the **show logging** command in privileged EXEC mode.

show logging [**message** [*syslog_id* | **all**] | **asdm** | **queue** | **setting**]

Syntax Description

all	(Optional) Displays all syslog message IDs, along with whether they are enabled or disabled.
asdm	(Optional) Displays ASDM logging buffer content.
message	(Optional) Displays messages that are at a non-default level. See the **logging message** command to set the message level.
queue	(Optional) Displays the syslog message queue.
setting	(Optional) Displays the logging setting, without displaying the logging buffer.
syslog_id	(Optional) Specifies a message number to display.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.
8.0(2)	Indicates whether a syslog server is configured to use an SSL/TLS connection.
8.4(1)	For the **show logging** command, the output includes an enry for the current state of the audit block.

Usage Guidelines

If the **logging buffered** command is in use, the **show logging** command without any keywords shows the current message buffer and the current settings.

The **show logging queue** command allows you to display the following:

- Number of messages that are in the queue
- Highest number of messages recorded that are in the queue
- Number of messages that are discarded because block memory was not available to process them
- Separate queues for traps and other syslog messages

Note Zero is an acceptable number for the configured queue size and represents the maximum queue size allowed. The output for the **show logging queue** command will display the actual queue size if the the configured queue size is zero.

Examples

The following is sample output from the **show logging** command:

```
hostname(config)# show logging
Syslog logging: enabled
    Facility: 20
    Timestamp logging: enabled
    Standby logging:disabled
    Debug-trace logging: disabled
    Console logging: level informational, 3962 messages logged
    Monitor logging: disabled
    Buffer logging: disabled
    Trap logging: level informational, facility 20, 20549 messages logged
        Logging to inside 10.2.5.3 tcp/50001 connected
    Permit-hostdown state
    History logging: disabled
    Device ID: disabled
    Mail logging: disabled
    ASDM logging: disabled
```

Note Valid values of *state* are enabled, disabled, disabled-blocking, and disabled-not blocking.

The following is sample output from the **show logging** command with a secure syslog server configured:

```
hostname(config)# logging host inside 10.0.0.1 TCP/1500 secure
hostname(config)# show logging
Syslog logging: disabled
    Facility:
    Timestamp logging: disabled
    Deny Conn when Queue Full: disabled
    Console logging: level debugging, 135 messages logged
    Monitor logging: disabled
    Buffer logging: disabled
    Trap logging: list show _syslog, facility, 20, 21 messages logged
        Logging to inside 10.0.0.1 tcp/1500 SECURE
    History logging: disabled
    Device ID: disabled
    Mail logging: disabled
    ASDM logging disabled
```

The following is sample output from the **show logging queue** command:

```
hostname(config)# show logging queue
Logging Queue length limit: 512 msg(s)
0 msg(s) discarded due to queue overflow
0 msg(s) discarded due to memory allocation failure
Current 0 msgs on queue, 0 msgs most on queue
```

The following is sample output from the **show logging message all** command:

```
hostname(config)# show logging message all

syslog 111111: default-level alerts (enabled)
syslog 101001: default-level alerts (enabled)
```

```
syslog 101002: default-level alerts (enabled)
syslog 101003: default-level alerts (enabled)
syslog 101004: default-level alerts (enabled)
syslog 101005: default-level alerts (enabled)
syslog 102001: default-level alerts (enabled)
syslog 103001: default-level alerts (enabled)
syslog 103002: default-level alerts (enabled)
syslog 103003: default-level alerts (enabled)
syslog 103004: default-level alerts (enabled)
syslog 103005: default-level alerts (enabled)
syslog 103011: default-level alerts (enabled)
syslog 103012: default-level informational (enabled)
```

Related Commands

Command	Description
logging asdm	Enables logging to ASDM
logging buffered	Enables logging to the buffer.
logging host	Defines a syslog server.
logging message	Sets the message level or disables messages.
logging queue	Configures the logging queue.

show logging flow-export-syslogs

To display all of the syslog messages whose information is also captured by NetFlow and that will be affected by the **logging flow-export-syslogs enable | disable** commands, use the **show logging flow-export-syslogs** command in privileged EXEC mode.

show logging flow-export-syslogs

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.1(1)	This command was introduced.

Usage Guidelines

After you enter the **logging flow-export syslogs disable** command, make sure that you know which syslog messages have been disabled. The disabled syslog messages are as follows:

Syslog Message	Description
106015	A TCP flow was denied because the first packet was not a SYN packet.
106023	A flow that is denied by an ingress ACL or an egress ACL that is attached to an interface through the **access-group** command.
106100	A flow that is permitted or denied by an ACL.
302013 and 302014	A TCP connection and deletion.
302015 and 302016	A UDP connection and deletion.
302017 and 302018	A GRE connection and deletion.
302020 and 302021	An ICMP connection and deletion.
313001	An ICMP packet to the ASA was denied.
313008	An ICMPv6 packet to the ASA was denied.
710003	An attempt to connect to the ASA was denied.

Examples

The following is sample output from the **show logging flow-export-syslogs** command, which lists the syslog messages that will be disabled:

```
hostname(config)# show logging flow-export-syslogs

Syslog ID          Type                 Status
302013           Flow Created          Enabled
302015           Flow Created          Enabled
302017           Flow Created          Enabled
302020           Flow Created          Enabled
302014           Flow Deleted          Enabled
302016           Flow Deleted          Enabled
302018           Flow Deleted          Enabled
302021           Flow Deleted          Enabled
106015           Flow Denied           Enabled
106023           Flow Denied           Enabled
313001           Flow Denied           Enabled
313008           Flow Denied           Enabled
710003           Flow Denied           Enabled
106100           Flow Created/Denied   Enabled
```

Related Commands

Commands	Description
flow-export destination *interface-name ipv4-address | hostname udp-port*	Specifies the IP address or hostname of the NetFlow collector, and the UDP port on which the NetFlow collector is listening.
flow-export template timeout-rate *minutes*	Controls the interval at which the template information is sent to the NetFlow collector.
logging flow-export-syslogs enable	Enables syslog messages after you have entered the **logging flow-export-syslogs disable** command, and the syslog messages that are associated with NetFlow data.
show flow-export counters	Displays a set of runtime counters for NetFlow.

show logging rate-limit

To display disallowed syslog messages, use the **show logging rate-limit** command in privileged EXEC mode.

show logging rate-limit

Syntax Description

This command has no arguments or keywords.

Defaults

This command has no default settings.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

After the information is cleared, nothing more displays until the hosts reestablish their connections.

Examples

The following example shows sample output from the **show logging rate-limit** command:

```
hostname(config)# show logging rate-limit
%ASA-7-710005: TCP request discarded from 171.69.39.0/2678 to management:10.89.130.244/443
%ASA-7-711002: Task ran for 27 msec, Process = ssm_mgmt_ifc_poll_thread, PC = 896fcac,
Traceback =
%ASA-7-711002: Task ran for 27 msec, Process = ssm_mgmt_ifc_poll_thread, PC = 896fcac,
Traceback =   0x0807C0FA
%ASA-6-106015: Deny TCP (no connection) from 171.69.39.0/2685 to 10.89.130.244/443 flags
FIN PSH ACK  on interface management
%ASA-7-710005: TCP request discarded from 171.69.39.0/2685 to management:10.89.130.244/443
%ASA-6-302013: Built inbound TCP connection 2116 for management:171.69.39.0/2689
(171.69.39.0/2689) to identity:10.89.130.244/443 (10.89.130.244/443)
%ASA-6-725001: Starting SSL handshake with client management:171.69.39.0/2689 for TLSv1
session.
%ASA-6-725003: SSL client management:171.69.39.0/2689 request to resume previous session.
%ASA-6-725002: Device completed SSL handshake with client management:171.69.39.0/2689
%ASA-6-605005: Login permitted from 171.69.39.0/2689 to management:10.89.130.244/https for
user "enable_15"
%ASA-5-111007: Begin configuration: 171.69.39.0 reading from http [POST]
```

Related Commands

Command	Description
show logging	Displays the enabled logging options.

show mac-address-table

To show the MAC address table, use the **show mac-address-table** command in privileged EXEC mode.

show mac-address-table [*interface_name* | **count** | **static**]

Syntax Description

count	(Optional) Lists the total number of dynamic and static entries.
interface_name	(Optional) Identifies the interface name for which you want to view MAC address table entries.
static	(Optional) Lists only static entries.

Defaults

If you do not specify an interface, all interface MAC address entries are shown.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	—	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show mac-address-table** command:

```
hostname# show mac-address-table
interface          mac address       type      Time Left
------------------------------------------------------------------------
outside            0009.7cbe.2100    static      -
inside             0010.7cbe.6101    static      -
inside             0009.7cbe.5101    dynamic     10
```

The following is sample output from the **show mac-address-table** command for the inside interface:

```
hostname# show mac-address-table inside
interface          mac address       type      Time Left
------------------------------------------------------------------------
inside             0010.7cbe.6101    static      -
inside             0009.7cbe.5101    dynamic     10
```

The following is sample output from the **show mac-address-table count** command:

```
hostname# show mac-address-table count
Static     mac-address bridges (curr/max): 0/65535
Dynamic    mac-address bridges (curr/max): 103/65535
```

Related Commands

Command	Description
firewall transparent	Sets the firewall mode to transparent.
mac-address-table aging-time	Sets the timeout for dynamic MAC address entries.
mac-address-table static	Adds a static MAC address entry to the MAC address table.
mac-learn	Disables MAC address learning.

show management-access

To display the name of the internal interface configured for management access, use the show management-access command in privileged EXEC mode.

show management-access

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **management-access** command lets you define an internal management interface using the IP address of the firewall interface specified in *mgmt_if*. (The interface names are defined by the **nameif** command and displayed in quotes, " ", in the output of the **show interface** command.)

Examples

The following example shows how to configure a firewall interface named "inside" as the management access interface and display the result:

```
hostname(config)# management-access inside
hostname(config)# show management-access
management-access inside
```

Related Commands

Command	Description
clear configure management-access	Removes the configuration of an internal interface for management access of the ASA.
management-access	Configures an internal interface for management access.

show memory

To display a summary of the maximum physical memory and current free memory available to the operating system, use the **show memory** command in privileged EXEC mode.

[**cluster exec**] **show memory** [**detail**]

Syntax Description

cluster exec	(Optional) In a clustering environment, enables you to issue the **show memory** command in one unit and run the command in all the other units at the same time.
detail	(Optional) Displays a detailed view of free and allocated system memory.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	The **cluster exec** option was added.

Usage Guidelines

The **show memory** command lets you display a summary of the maximum physical memory and current free memory available to the operating system. Memory is allocated as needed.

You can also display the information from the **show memory** command using SNMP.

You can use the **show memory detail** output with the **show memory binsize** command to debug memory leaks.

The **show memory detail** command output can be broken down into three sections: Summary, DMA Memory, and HEAP Memory. The summary displays how the total memory is allocated. Memory that is not tied to DMA or reserved is considered the HEAP. The Free Memory value is the unused memory in the HEAP. The Allocated memory in use value is how much of the HEAP has been allocated. The breakdown of HEAP allocation is displayed later in the output. Reserved memory and DMA Reserved memory are used by different system processes and primarily VPN services.

Values displayed in the allocated memory statistics total (bytes) column do not reflect real values (MEMPOOL_GLOBAL_SHARED POOL STATS) in the **show memory detail** command output.

The output shows that the block of size 49,152 was allocated then returned to the free pool, and another block of size 131,072 was allocated. In this case, you would think that free memory decreased by 131,072-49,152=81,920 bytes, but it actually decreased by 100,000 bytes (see the Free memory line).

```
hostname# show memory detail

MEMPOOL_GLOBAL_SHARED POOL STATS:           MEMPOOL_GLOBAL_SHARED POOL STATS:

Non-mmapped bytes allocated =   1862270976  Non-mmapped bytes allocated =   1862270976
Number of free chunks       =           99  Number of free chunks       =          100
Number of mmapped regions   =            0  Number of mmapped regions   =            0
Mmapped bytes allocated     =            0  Mmapped bytes allocated     =            0
Max memory footprint        =   1862270976  Max memory footprint        =   1862270976
Keepcost                    =   1762019304  Keepcost                    =   1761869256
Max contiguous free mem     =   1762019304  Max contiguous free mem     =   1761869256
Allocated memory in use     =    100133944  Allocated memory in use     =    100233944
Free memory                 =   1762137032  Free memory                 =   1762037032


----- fragmented memory statistics -----    ----- fragmented memory statistics -----

 fragment size       count          total     fragment size       count          total
    (bytes)                        (bytes)       (bytes)                        (bytes)
---------------  ----------  -------------- ---------------  ----------  --------------
        32768             1          33176           32768             1          33176
                                                      49152             1          50048
   1762019304             1     1762019304*     1761869256             1     1761869256*


----- allocated memory statistics -----     ----- allocated memory statistics -----

 fragment size       count          total     fragment size       count          total
    (bytes)                        (bytes)       (bytes)                        (bytes)
---------------  ----------  -------------- ---------------  ----------  --------------
        49152            10         491520           49152             9         442368
        65536           125        8192000           65536           125        8192000
        98304             3         294912           98304             3         294912
       131072            18        2359296          131072            19        2490368
```

The following output confirms that a block of size 150,000 was allocated, instead of 131,072:

```
hostname# show memory binsize 131072
MEMPOOL_DMA pool bin stats:
MEMPOOL_GLOBAL_SHARED pool bin stats:
pc = 0x8eda524, size = 150000   , count = 1
pc = 0x8f08054, size = 163904   , count = 1
pc = 0x846e477, size = 139264   , count = 1
pc = 0x8068691, size = 393216   , count = 3
pc = 0x8eea09b, size = 131072   , count = 1
pc = 0x88ca830, size = 141212   , count = 1
pc = 0x9589e93, size = 593580   , count = 4
pc = 0x9589bd2, size = 616004   , count = 4
pc = 0x8f2e060, size = 327808   , count = 2
pc = 0x8068284, size = 182000   , count = 1

0x8eda524 <logger_buffer_init_int+148 at syslog/main.c:403>
```

The approximate number of total bytes shown in the **show memory detail** command output is by design. There are two reasons for this:

- For each fragment size, if you had to get the sum of all fragments, a performance impact would occur because there can be very large number of allocations for a single fragment size and to get the accurate value, you need to walk over thousands of chunks.

- For each binsize, you need to walk through the doubly linked list of allocations and there could be many allocations. In this case, you cannot hog the CPU for an extended period and would need to suspend allocations periodically. After you resume allocations, other processes may have allocated or deallocated memory and memory states may have changed. As a result, the total bytes column gives an approximate value instead of the real value.

Examples

The following is sample output from the **show memory** command:

```
hostname# show memory
Free memory:       845044716 bytes (79%)
Used memory:       228697108 bytes (21%)
-------------     ----------------
Total memory:     1073741824 bytes (100%)
```

The following is sample output from the **show memory detail** command:

```
hostname# show memory detail
Free memory:                   130546920 bytes (49%)
Used memory:                   137888536 bytes (51%)
Allocated memory in use:        33030808 bytes (12%)
Reserved memory:                65454208 bytes (24%)
DMA Reserved memory:            39403520 bytes (15%)
-----------------------------------------------------
Total memory:                  268435456 bytes (100%)
Dynamic Shared Objects(DSO):           0 bytes
DMA memory:
  Unused memory:                 3212128 bytes (8%)
  Crypto reserved memory:        2646136 bytes (7%)
  Crypto free:                   1605536 bytes (4%)
  Crypto used:                   1040600 bytes (3%)
  Block reserved memory:        33366816 bytes (85%)
  Block free:                   31867488 bytes (81%)
  Block used:                    1499328 bytes (4%)
  Used memory:                    178440 bytes (0%)
-----------------------------------------------------
  Total memory:                 39403520 bytes (100%)
  HEAP memory:
  Free memory:                 130546920 bytes (80%)
  Used memory:                  33030808 bytes (20%)
  Init used memory by library:   4218752 bytes (3%)
  Allocated memory:            28812056 bytes (18%)
-----------------------------------------------------
  Total memory:                 163577728 bytes (100%)

Least free memory: 122963528 bytes (75%)
Most used memory:   40614200 bytes (25%)

----- fragmented memory statistics -----

fragment size    count      total
(bytes)                     (bytes)
---------------- ---------- --------------
16               113        1808

<More>
```

The following is sample output from the **show memory** command on the ASA 5525 after enabling the **jumbo-frame reservation** command and issuing the **write memory** command and the **reload** command:

```
hostname# show memory
Free memory:        3008918624 bytes (70%)
Used memory:        1286048672 bytes (30%)
-------------       ----------------------
Total memory:       4294967296 bytes (100%)
```

The following is sample output from the **show memory** command on the ASA 5525 without enabling the **jumbo-frame reservation** command:

```
hostname# show memory
Free memory:        3318156400 bytes (77%)
Used memory:         976810896 bytes (23%)
-------------       ------------------
Total memory:       4294967296 bytes (100%)
```

The following is sample output from the **show memory** command on the ASA 5515 after enabling the **jumbo-frame reservation** command:

```
hostname# show memory
Free memory:        3276619472 bytes (76%)
Used memory:        1018347824 bytes (24%)
-------------       ------------------
Total memory:       4294967296 bytes (100%)
```

The following is sample output from the **show memory** command on the ASA 5515 without enabling the **jumbo-frame reservation** command:

```
hostname# show memory
Free memory:        3481145472 bytes (81%)
Used memory:         813821824 bytes (19%)
-------------       ------------------
Total memory:       4294967296 bytes (100%)
```

The following is sample output from the **show memory** command on the ASA 5585 after enabling the **jumbo-frame reservation** command:

```
hostname# show memory
Free memory:        8883297824 bytes (69%)
Used memory:        4001604064 bytes (31%)
-------------       ------------------
Total memory:      12884901888 bytes (100%)
```

The following is sample output from the **show memory** command on the ASA 5585 without enabling the **jumbo-frame reservation** command:

```
hostname# show memory
Free memory:        9872205104 bytes (77%)
Used memory:        3012696784 bytes (23%)
-------------       ------------------
Total memory:      12884901888 bytes (100%)
```

The following is sample output from the **show memory** command on the ASA 5520, which does not support the **jumbo-frame** command:

```
hostname# show memory
ree memory:         206128232 bytes (38%)
Used memory:         330742680 bytes (62%)
-------------       -----------------
Total memory:        536870912 bytes (100%)
```

The following is sample output from the **show memory** command on the ASA 5505, which does not support the **jumbo-frame** command:

```
hostname# show memory
Free memory:           48457848 bytes (18%)
Used memory:          219977608 bytes (82%)
-------------         -----------------
Total memory:         268435456 bytes (100%
```

Related Commands

Command	Description
show memory profile	Displays information about the memory usage (profiling) of the ASA.
show memory binsize	Displays summary information about the chunks allocated for a specific bin size.

show memory api

To display the malloc stack APIs that are registered in the system , use the **show memory api** command in privileged EXEC mode.

show memory api

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command displays the malloc stack APIs that are registered in the system.

If any of the memory debugging features are turned on (that is, delay-free-poisoner, memory tracker, or memory profiler), their APIs appear in the **show memory api** command output.

Examples

This following is sample output from the **show memory api** command:

```
hostname# show memory api
Resource Manager (0) ->
Tracking (0) ->
Delayed-free-poisoner (0) ->
Core malloc package (0)
```

Related Commands

Command	Description
show memory profile	Displays information about the memory usage (profiling) of the ASA.
show memory binsize	Displays summary information about the chunks allocated for a specific bin size.

show memory app-cache

To observe memory usage by application, use the **show memory app-cache** command in privileged EXEC mode.

show memory app-cache [**threat-detection** | **host** | **flow** | **tcb** | **http** | **access-list**] [**detail**]

Syntax Descriptions

access-list	(Optional) Shows the application level memory cache for access lists.
detail	(Optional) Shows a detailed view of free and allocated system memory.
flow	(Optional) Shows the application level memory cache for flows.
host	(Optional) Shows application level memory cache for hosts.
http	(Optional) Shows application level memory cache for HTTP.
tcb	(Optional) Shows application level memory cache for TCB.
threat-detection	(Optional) Shows application level memory cache for threat detection.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.0(1)	This command was introduced.
8.1(1)	The **access-list** and **http** options were added.

Usage Guidelines

This command enables you to observe memory usage by application.

Examples

The following is sample output from the **show memory app-cache threat-detection** command:

```
hostname(config)# show memory app-cache threat-detection
LIMIT COUNT ALLOC FAILED BYTES USED
TOTAL 1350 460 115167 0 130926168
```

The following is sample output from the **show memory app-cache threat-detection detail** command:

```
hostname(config)# show memory app-cache threat-detection detail
CACHE NAME LIMIT COUNT ALLOC FAILED BYTES USED
TD ACE stats 50 0 2 0 1936
TD Host/Port counte 100 0 2 0 48
TD Host/Port counte 100 0 2 0 48
```

```
TD Host/Port counte 100 0 2 0 48
TD Host/Port counte 100 0 2 0 48
TD Host stats 50 50 16120 0 116515360
TD Subnet stats 50 2 113 0 207016
TD Host/Port counte 100 100 24618 0 3544992
TD Host/Port counte 100 100 24618 0 3544992
TD Host/Port counte 100 100 24618 0 3544992
TD Host/Port counte 100 100 24618 0 3544992
TD Host/Port counte 100 2 113 0 5424
TD Host/Port counte 100 2 113 0 5424
TD Host/Port counte 100 2 113 0 5424
TD Host/Port counte 100 2 113 0 5424

LIMIT COUNT ALLOC FAILED BYTES USED
TOTAL 1350 460 115167 0 130926168
```

The following is sample output from the **show memory app-cache host detail** command:

```
hostname(config)# show memory app-cache host detail
CACHE NAME LIMIT COUNT ALLOC FAILED BYTES USED
SNP Host Core 0 1000 1000 5116 0 961808
SNP Host Core 1 1000 1000 4968 0 933984
SNP Host Core 2 1000 1000 5413 0 1017644
SNP Host Core 3 1000 1000 4573 0 859724

LIMIT COUNT ALLOC FAILED BYTES USED
TOTAL 4000 4000 20070 0 3773160
```

The following is sample output from the **show memory app-cache flow detail** command:

```
hostname(config)# show memory app-cache flow detail
CACHE NAME LIMIT COUNT ALLOC FAILED BYTES USED
SNP Conn Core 0 1000 1000 893 0 639388
SNP Conn Core 1 1000 948 980 0 701680
SNP Conn Core 2 1000 1000 1175 0 841300
SNP Conn Core 3 1000 1000 901 0 645116

LIMIT COUNT ALLOC FAILED BYTES USED
TOTAL 4000 3948 3949 0 2827484
```

The following is sample output from the **show memory app-cache access-list detail** command:

```
hostname(config)# show memory app-cache access-list detail
CACHE NAME LIMIT COUNT ALLOC FAILED BYTES USED
NP ACL log c Core 0 1000 0 1 0 68
NP ACL log c Core 1 1000 0 6 0 408
NP ACL log c Core 2 1000 0 19 0 1292
NP ACL log c Core 3 1000 0 0 0 0
NP ACL log f Core 0 1000 0 0 0 0
NP ACL log f Core 1 1000 0 0 0 0
NP ACL log f Core 2 1000 0 0 0 0
NP ACL log f Core 3 1000 0 0 0 0

LIMIT COUNT ALLOC FAILED BYTES USED
TOTAL 8000 0 26 0 1768
```

The following is sample output from the **show memory app-cache http detail** command:

```
hostname(config)# show memory app-cache http detail
CACHE NAME LIMIT COUNT ALLOC FAILED BYTES USED
Inspect HTTP Core 0 1000 0 0 0 0
Inspect HTTP Core 1 1000 0 0 0 0
Inspect HTTP Core 2 1000 0 0 0 0
Inspect HTTP Core 3 1000 0 0 0 0
HTTP Result Core 0 1000 0 0 0 0
```

```
HTTP Result Core 1 1000 0 0 0 0
HTTP Result Core 2 1000 0 0 0 0
HTTP Result Core 3 1000 0 0 0 0

LIMIT COUNT ALLOC FAILED BYTES USED
TOTAL 8000 0 0 0 0
```

The following is sample output from the **show memory app-cache tcb detail** command:

```
hostname(config)# show memory app-cache tcb detail
CACHE NAME LIMIT COUNT ALLOC FAILED BYTES USED
SNP TCB Core 0 1000 1000 968 0 197472
SNP TCB Core 1 1000 1000 694 0 141576
SNP TCB Core 2 1000 1000 1304 0 266016
SNP TCB Core 3 1000 1000 1034 0 210936

LIMIT COUNT ALLOC FAILED BYTES USED
TOTAL 4000 4000 4000 0 816000
```

Related Commands

Command	Description
show memory profile	Displays information about the memory usage (profiling) of the ASA.
show memory binsize	Displays summary information about the chunks allocated for a specific bin size.
show memory	Displays a summary of the maximum physical memory and current free memory available to the operating system.

show memory binsize

To display summary information about the chunks allocated for a specific bin size, use the **show memory binsize** command in privileged EXEC mode.

show memory binsize *size*

Syntax Description

size	Displays chunks (memory blocks) of a specific bin size. The bin size is from the "fragment size" column of the **show memory detail** command output.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command has no usage guidelines.

Examples

The following example displays summary information about a chunk allocated to a bin size of 500:

```
hostname# show memory binsize 500
pc = 0x00b33657, size = 460      , count = 1
```

Related Commands

Command	Description
show memory-caller address	Displays the address ranges configured on the ASA.
show memory profile	Displays information about the memory usage (profiling) of the ASA.
show memory	Displays a summary of the maximum physical memory and current free memory available to the operating system.

show memory delayed-free-poisoner

To display a summary of the **memory delayed-free-poisoner** queue usage, use the **show memory delayed-free-poisoner** command in privileged EXEC mode.

show memory delayed-free-poisoner

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Use the **clear memory delayed-free-poisoner** command to clear the queue and statistics.

Examples

This following is sample output from the **show memory delayed-free-poisoner** command:

```
hostname# show memory delayed-free-poisoner
delayed-free-poisoner statistics:
         3335600:  memory held in queue
            6095:  current queue count
               0:  elements dequeued
               3:  frees ignored by size
            1530:  frees ignored by locking
              27:  successful validate runs
               0:  aborted validate runs
        01:09:36:  local time of last validate
```

Table 51-2 describes the significant fields in the **show memory delayed-free-poisoner** command output.

Table 51-2 **show memory delayed-free-poisoner *Command Output Descriptions***

Field	Description
memory held in queue	The memory that is held in the delayed free-memory poisoner tool queue. Such memory is normally in the "Free" quantity in the **show memory** output if the delayed free-memory poisoner tool is not enabled.
current queue count	The number of elements in the queue.
elements dequeued	The number of elements that have been removed from the queue. This number begins to increase when most or all of the otherwise free memory in the system ends up in being held in the queue.
frees ignored by size	The number of free requests not placed into the queue because the request was too small to hold required tracking information.
frees ignored by locking	The number of free requests intercepted by the tool not placed into the queue because the memory is in use by more than one application. The last application to free the memory back to the system ends up placing such memory regions into the queue.
successful validate runs	The number of times since monitoring was enabled or cleared using the **clear memory delayed-free-poisoner** command that the queue contents were validated (either automatically or by the **memory delayed-free-poisoner validate** command).
aborted validate runs	The number of times since monitoring was enabled or cleared using the **clear memory delayed-free-poisoner** command that requests to check the queue contents have been aborted because more than one task (either the periodic run or a validate request from the CLI) attempted to use the queue at a time.
local time of last validate	The local system time when the last validate run completed.

Related Commands

Command	Description
clear memory delayed-free-poisoner	Clears the delayed free-memory poisoner tool queue and statistics.
memory delayed-free-poisoner enable	Enables the delayed free-memory poisoner tool.
memory delayed-free-poisoner validate	Forces validation of the elements in the delayed free-memory poisoner tool queue.

show memory profile

To display information about the memory usage (profiling) of the ASA, use the **show memory profile** command in privileged EXEC mode.

show memory profile [**peak**] [**detail | collated | status**]

Syntax Description

collated	(Optional) Collates the memory information displayed.
detail	(Optional) Displays detailed memory information.
peak	(Optional) Displays the peak capture buffer rather than the "in use" buffer.
status	(Optional) Displays the current state of memory profiling and the peak capture buffer**.**

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	—	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Use the **show memory profile** command to troubleshoot memory usage level and memory leaks. You can still see the profile buffer contents even if profiling has been stopped. Starting profiling clears the buffer automatically.

Note The ASA might experience a temporary reduction in performance when memory profiling is enabled.

Examples

The following is sample output from the **show memory profile** command:

```
hostname# show memory profile
Range: start = 0x004018b4, end = 0x004169d0, increment = 00000004
Total = 0
```

The output of the **show memory profile detail** command is divided into six data columns and one header column, at the far left. The address of the memory bucket corresponding to the first data column is given at the header column (the hexidecimal number). The data itself is the number of bytes that is held by the text/code that falls in the bucket address. A period (.) in the data column means no memory is held by

the text at this bucket. Other columns in the row correspond to the bucket address that is greater than the increment amount from the previous column. For example, the address bucket of the first data column in the first row is 0x001069e0. The address bucket of the second data column in the first row is 0x001069e4 and so on. Normally the header column address is the next bucket address; that is, the address of the last data column of the previous row plus the increment. All rows without any usage are suppressed. More than one such contiguous row can be suppressed, indicated with three periods at the header column (...).

The following is sample output from the **show memory profile detail** command:

```
hostname# show memory profile detail
Range: start = 0x00100020, end = 0x00e006e0, increment = 00000004
Total = 48941152
...
0x001069e0 . 24462 . . . .
...
0x00106d88 . 1865870 . . . .
...
0x0010adf0 . 7788 . . . .
...
0x00113640 . . . . 433152 .
...
0x00116790 2480 . . . . .
<snip>
```

The following is sample output from the **show memory profile collated** command:

```
hostname# show memory profile collated
Range: start = 0x00100020, end = 0x00e006e0, increment = 00000004
Total = 48941152
24462 0x001069e4
1865870 0x00106d8c
7788 0x0010adf4
433152 0x00113650
2480 0x00116790
<More>
```

The following is sample output from the **show memory profile peak** command, which shows the peak capture buffer:

```
hostname# show memory profile peak
Range: start = 0x004018b4, end = 0x004169d0, increment = 00000004
Total = 102400
```

The following is sample output from the **show memory profile peak detail** command, which shows the peak capture buffer and the number of bytes that is held by the text/code that falls in the corresponding bucket address:

```
hostname# show memory profile peak detail
Range: start = 0x004018b4, end = 0x004169d0, increment = 00000004
Total = 102400
...
0x00404c8c . . 102400 . . .
```

The following is sample output from the **show memory profile status** command, which shows the current state of memory profiling and the peak capture buffer:

```
hostname# show memory profile status
InUse profiling: ON
Peak profiling: OFF
Memory used by profile buffers: 11518860 bytes
Profile:
0x00100020-0x00bfc3a8(00000004)
```

Related Commands

Command	Description
memory profile enable	Enables the monitoring of memory usage (memory profiling).
memory profile text	Configures a program text range of memory to profile.
clear memory profile	Clears the memory buffers held by the memory profiling function.

show memory top-usage

To display the top number of allocated fragment sizes from the **show memory detail** command, use the **show memory top-usage** command in privileged EXEC mode.

show memory top-usage [*num*]

Syntax Description

num	(Optional) Shows the number of bin sizes to list. Valid values are from 1-64.

Defaults

The default for *num* is 10.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
8.4(6)	This command was introduced.

Usage Guidelines

Use the **show memory top-usage** command to display the top number of allocated fragment sizes from the **show memory detail** command.

This command does not use clustering and does not need to be disabled when clustering is enabled.

Examples

The following is sample output from the **show memory top-usage** command:

```
hostname# show memory top-usage 3
MEMPOOL_DMA pool binsize allocated byte totals:

----- allocated memory statistics -----

 fragment size       count          total
    (bytes)                        (bytes)
----------------  ----------  --------------
      1572864             9       14155776
     12582912             1       12582912
      6291456             1        6291456

----- Binsize PC top usage -----

Binsize: 1572864                total (bytes): 14155776

pc = 0x805a870, size = 16422399 , count = 9
```

```
Binsize: 12582912               total (bytes): 12582912

pc = 0x805a870, size = 12960071 , count = 1

Binsize: 6291456                total (bytes): 6291456

pc = 0x9828a6c, size = 7962695  , count = 1


MEMPOOL_GLOBAL_SHARED pool binsize allocated byte totals:

----- allocated memory statistics -----

 fragment size       count          total
    (bytes)                        (bytes)
----------------  ----------  --------------
     12582912             1       12582912
      2097152             6       12582912
        65536           181       11862016

----- Binsize PC top usage -----

Binsize: 12582912               total (bytes): 12582912

pc = 0x8249763, size = 37748736 , count = 1

Binsize: 2097152                total (bytes): 12582912

pc = 0x8a7ebfb, size = 2560064  , count = 1
pc = 0x8aa4413, size = 2240064  , count = 1
pc = 0x8a9bb13, size = 2240064  , count = 1
pc = 0x8a80542, size = 2097152  , count = 1
pc = 0x97e7172, size = 2097287  , count = 1
pc = 0x8996463, size = 2272832  , count = 1

Binsize: 65536                  total (bytes): 11862016

pc = 0x913db2b, size = 11635232 , count = 161
pc = 0x91421eb, size = 138688   , count = 2
pc = 0x97e7172, size = 339740   , count = 4
pc = 0x97e7433, size = 197229   , count = 3
pc = 0x82c3412, size = 65536    , count = 1
pc = 0x8190e09, size = 155648   , count = 2
pc = 0x8190af6, size = 77824    , count = 1
pc = 0x93016a1, size = 65536    , count = 1
pc = 0x89f1a40, size = 65536    , count = 1
pc = 0x9131140, size = 163968   , count = 2
pc = 0x8ee56c8, size = 66048    , count = 1
pc = 0x8056a01, size = 66528    , count = 1
pc = 0x80569e5, size = 66528    , count = 1
```

Related Commands

Command	Description
show memory tracking	Shows all currently collected information.

show memory tracking

To display currently allocated memory tracked by the tool, use the **show memory tracking** command in privileged EXEC mode.

show memory tracking [**address** | **dump** | **detail**]

Syntax Description

address	(Optional) Shows memory tracking by address.
detail	(Optional) Shows the internal memory tracking state.
dump	(Optional) Shows the memory tracking address.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	—	•	•

Command History

Release	Modification
7.0(8)	This command was introduced.

Usage Guidelines

Use the **show memory tracking** command to show currently allocated memory tracked by the tool.

Examples

The following is sample output from the **show memory tracking** command:

```
hostname# show memory tracking
memory tracking by caller:
17 bytes from 1 allocates by 0x080c50c2
37 bytes from 1 allocates by 0x080c50f6
57 bytes from 1 allocates by 0x080c5125
20481 bytes from 1 allocates by 0x080c5154
```

The following is sample output from the **show memory tracking address** command:

```
hostname# show memory tracking address
memory tracking by caller:
17 bytes from 1 allocates by 0x080c50c2
37 bytes from 1 allocates by 0x080c50f6
57 bytes from 1 allocates by 0x080c5125
20481 bytes from 1 allocates by 0x080c5154

memory tracking by address:
37 byte region @ 0xa893ae80 allocated by 0x080c50f6
```

```
57 byte region @ 0xa893aed0 allocated by 0x080c5125
20481 byte region @ 0xa8d7cc50 allocated by 0x080c5154
17 byte region @ 0xa8a6f370 allocated by 0x080c50c2
```

The following is sample output from the **show memory tracking dump** command:

```
hostname# show memory tracking dump
Tracking data for the 57 byte region at 0xa893aed0:
Timestamp: 05:59:36.309 UTC Sun Jul 29 2007
Traceback:
0x080c5125
0x080b3695
0x0873f606
0x08740573
0x080ab530
0x080ac788
0x080ad141
0x0805df8f
Dumping 57 bytes of the 57 byte region:
a893aed0: 0c 0c 0c 0c 0c 0c 0c 0c 0c 0c 0c 0c 0c 0c 0c 0c | ................
a893aee0: 0c 0c 0c 0c 0c 0c 0c 0c 0c 0c 0c 0c 0c 0c 0c 0c | ................
a893aef0: 0c 0c 0c 0c 0c 0c 0c 0c 0c 0c 0c 0c 0c 0c 0c 0c | ................
a893af00: 0c 0c 0c 0c 0c 0c 0c 0c 0c | .........
```

Related Commands

Command	Description
clear memory tracking	Clears all currently collected information.

show memory webvpn

To generate memory usage statistics for WebVPN, use the **show memory webvpn** command in privileged EXEC mode.

show memory webvpn [**allobjects | blocks | dumpstate** [**cache | disk0 | disk1 | flash | ftp | system | tftp**] | **pools | profile** [**clear | dump | start | stop**] | **usedobjects** {{**begin | exclude | grep | include**} **line** *line*}]

Syntax Description

allobjects	Displays WebVPN memory consumption details for pools, blocks , and all used and freed objects.
begin	Begins with the line that matches.
blocks	Displays WebVPN memory consumption details for memory blocks.
cache	Specifies a filename for a WebVPN memory cache state dump.
clear	Clears the WebVPN memory profile.
disk0	Specifies a filename for WebVPN memory disk0 state dump.
disk1	Specifies a filename for WebVPN memory disk1 state dump:.
dump	Puts WebVPN memory profile into a file.
dumpstate	Puts WebVPN memory state into a file.
exclude	Excludes the line(s) that match.
flash	Specifies a filename for the WebVPN memory flash state dump.
ftp	Specifies a filename for the WebVPN memory FTP state dump.
grep	Includes or excludes lines that match.
include	Includes the line(s) that match.
line	Identifies the line(s) to match.
line	Specifies the line(s) to match.
pools	Shows WebVPN memory consumption details for memory pools.
profile	Obtains the WebVPN memory profile and places it in a file.
system	Specifies a filename for the WebVPN memory system state dump.
start	Starts gathering the WebVPN memory profile.
stop	Stops getting the WebVPN memory profile.
tftp	Specifies a filename for a WebVPN memory TFTP state dump.
usedobjects	Displays WebVPN memory consumption details for used objects.

Defaults

No default behavior or value.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—
Global configuration	•	—	•	—	—
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Examples

The following is sample output from the **show memory webvpn allobjects** command:

```
hostname# show memory webvpn allobjects
Arena 0x36b14f8 of 4094744 bytes (61 blocks of size 66048), maximum 134195200
130100456 free bytes (97%; 1969 blocks, zone 0)
Arena is dynamically allocated, not contiguous
Features: GroupMgmt: SET, MemDebugLog: unset
Pool 0xd719a78 ("cp_entries" => "pool for class cpool entries") (next 0xd6d91d8)
Size: 66040 (1% of current, 0% of limit)
Object frame size: 32
Load related limits: 70/50/30
Callbacks: !init/!prep/!f2ca/!dstr/!dump
Blocks in use:
Block 0xd719ac0..0xd729cb8 (size 66040), pool "cp_entries"
Watermarks { 0xd7098f8 <= 0xd70bb60 <= 0xd719a60 } = 57088 ready
Block size 66040 not equal to arena block 66048 (realigned-to-8)
Used objects: 0
Top allocated count: 275
Objects dump:
0. Object 0xd70bb50: FREED (by "jvclass_pool_free")
```

Related Commands

Command	Description
memory-size	Sets the amount of memory on the ASA that WebVPN services can use.

show memory-caller address

To display the address ranges configured on the ASA, use the **show memory-caller address** command in privileged EXEC mode.

show memory-caller address

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	—	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You must first configure an address ranges with the **memory caller-address** command before you can display them with the **show memory-caller address** command.

Examples

The following examples show how to configure the address ranges with the **memory caller-address** command, and the resulting output of the **show memory-caller address** command:

```
hostname# memory caller-address 0x00109d5c 0x00109e08
hostname# memory caller-address 0x009b0ef0 0x009b0f14
hostname# memory caller-address 0x00cf211c 0x00cf4464

hostname# show memory-caller address
Move down stack frame for the addresses:
pc = 0x00109d5c-0x00109e08
pc = 0x009b0ef0-0x009b0f14
pc = 0x00cf211c-0x00cf4464
```

If address ranges are not configured before entering the **show memory-caller address** command, no addresses display:

```
hostname# show memory-caller address
Move down stack frame for the addresses:
```

Related Commands

Command	Description
memory caller-address	Configures a block of memory for the caller PC.

show mfib

To display MFIB in terms of forwarding entries and interfaces, use the **show mfib** command in user EXEC or privileged EXEC mode.

show mfib [*group* [*source*]] [**verbose**] [**cluster**]

Syntax Description

cluster	(Optional) Displays the MFIB epoch number and the current timer value.
group	(Optional) Displays the IP address of the multicast group.
source	(Optional) Displays the IP address of the multicast route source. This is a unicast IP address in four-part dotted-decimal notation.
verbose	(Optional) Displays additional information about the entries.

Defaults

Without the optional arguments, information for all groups is shown.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
User EXEC or Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	The **cluster** keyword was added. Applies to the ASA 5580 and 5585-X only.

Examples

The following is sample output from the **show mfib** command:

```
hostname# show mfib 224.0.2.39
Entry Flags: C - Directly Connected, S - Signal, IA - Inherit A flag,
             AR - Activity Required, D - Drop
Forwarding counts: Pkt Count/Pkts per second/Avg Pkt Size/Kbits per second
Other counts: Total/RPF failed/Other drops
Interface flags: A - Accept, F - Forward, NS - Negate Signalling
             IC - Internal Copy, NP - Not platform switched
             SP - Signal Present
Interface Counts: FS Pkt Count/PS Pkt Count
(*,224.0.1.39) Flags: S K
  Forwarding: 0/0/0/0, Other: 0/0/0
```

Related Commands

Command	Description
show mfib verbose	Displays detail information about the forwarding entries and interfaces.

show mfib active

To display active multicast sources, use the **show mfib active** command in user EXEC or privileged EXEC mode.

show mfib [*group*] **active** [*kbps*]

Syntax Description

group	(Optional) IP address of the multicast group.
kbps	(Optional) Limits the display to multicast streams that are greater-than or equal to this value.

This command has no arguments or keywords.

Defaults

The default value for *kbps* is 4. If a *group* is not specified, all groups are shown.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
User EXEC or Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The output for the show mfib active command displays either positive or negative numbers for the rate PPS. The ASA displays negative numbers when RPF packets fail or when the router observes RPF packets with an interfaces out (OIF) list. This type of activity may indicate a multicast routing problem.

Examples

The following is sample output from the **show mfib active** command:

```
hostname# show mfib active
Active IP Multicast Sources - sending >= 4 kbps

Group: 224.2.127.254, (sdr.cisco.com)
   Source: 192.168.28.69 (mbone.ipd.anl.gov)
     Rate: 1 pps/4 kbps(1sec), 4 kbps(last 1 secs), 4 kbps(life avg)

Group: 224.2.201.241, ACM 97
   Source: 192.168.52.160 (webcast3-e1.acm97.interop.net)
     Rate: 9 pps/93 kbps(1sec), 145 kbps(last 20 secs), 85 kbps(life avg)

Group: 224.2.207.215, ACM 97
   Source: 192.168.52.160 (webcast3-e1.acm97.interop.net)
```

```
Rate: 3 pps/31 kbps(1sec), 63 kbps(last 19 secs), 65 kbps(life avg)
```

Related Commands

Command	Description
show mroute active	Displays active multicast streams.

show mfib count

To display MFIB route and packet count data, use the **show mfib count** command in user EXEC or privileged EXEC mode.

show mfib [*group* [*source*]] **count**

Syntax Description

group	(Optional) IP address of the multicast group.
source	(Optional) IP address of the multicast route source. This is a unicast IP address in four-part dotted-decimal notation.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
User EXEC or Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command displays packet drop statistics.

Examples

The following sample output from the **show mfib count** command:

```
hostname# show mfib count
MFIB global counters are :
* Packets [no input idb] : 0
* Packets [failed route lookup] : 0
* Packets [Failed idb lookup] : 0
* Packets [Mcast disabled on input I/F] : 0
```

Related Commands

Command	Description
clear mfib counters	Clears MFIB router packet counters.
show mroute count	Displays multicast route counters.

show mfib interface

To display packet statistics for interfaces that are related to the MFIB process, use the **show mfib interface** command in user EXEC or privileged EXEC mode.

show mfib interface [*interface*]

Syntax Description

interface	(Optional) Interface name. Limits the display to the specified interface.

Defaults

Information for all MFIB interfaces is shown.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
User EXEC or Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example is sample output from the **show mfib interface** command:

```
hostname# show mfib interface
IP Multicast Forwarding (MFIB) status:
    Configuration Status: enabled
    Operational Status: running
MFIB interface       status    CEF-based output
                               [configured,available]
           Ethernet0   up    [        no,       no]
           Ethernet1   up    [        no,       no]
           Ethernet2   up    [        no,       no]
```

Related Commands

Command	Description
show mfib	Displays MFIB information in terms of forwarding entries and interfaces.

show mfib reserved

To display reserved groups, use the **show mfib reserved** command in user EXEC or privileged EXEC mode.

show mfib reserved [**count** | **verbose** | **active** [*kpbs*]]

Syntax Description

active	(Optional) Displays active multicast sources.
count	(Optional) Displays packet and route count data.
kpbs	(Optional) Limits the display to active multicast sources greater than or equal to this value.
verbose	(Optional) Displays additional information.

Defaults

The default value for *kbps* is 4.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
User EXEC or Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command displays MFIB entries in the range 224.0.0.0 through 224.0.0.225.

Examples

The following is sample output from the **show mfib reserved** command:

```
hostname# command example
Entry Flags: C - Directly Connected, S - Signal, IA - Inherit A flag,
             AR - Activity Required, D - Drop Forwarding Counts: Pkt Count/Pkts per
second/Avg Pkt Size/Kbits per second Other counts: Total/RPF failed/Other drops Interface
Flags: A - Accept, F - Forward, NS - Negate Signalling
             IC - Internal Copy, NP - Not platform switched
             SP - Signal Present
Interface Counts: FS Pkt Count/PS Pkt Count
(*,224.0.0.0/4) Flags: C K
   Forwarding: 0/0/0/0, Other: 0/0/0
(*,224.0.0.0/24) Flags: K
   Forwarding: 0/0/0/0, Other: 0/0/0
(*,224.0.0.1) Flags:
   Forwarding: 0/0/0/0, Other: 0/0/0
   outside Flags: IC
```

```
dmz Flags: IC
inside Flags: IC
```

Related Commands

Command	Description
show mfib active	Displays active multicast streams.

show mfib status

To display the general MFIB configuration and operational status, use the **show mfib status** command in user EXEC or privileged EXEC mode.

show mfib status

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
User EXEC or Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show mfib status** command:

```
hostname# show mfib status
IP Multicast Forwarding (MFIB) status:
    Configuration Status: enabled
    Operational Status: running
```

Related Commands

Command	Description
show mfib	Displays MFIB information in terms of forwarding entries and interfaces.

show mfib summary

To display summary information about the number of MFIB entries and interfaces, use the **show mfib summary** command in user EXEC or privileged EXEC mode.

show mfib summary

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
User EXEC or Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show mfib summary** command:

```
hostname# show mfib summary
IPv6 MFIB summary:

  54     total entries [1 (S,G), 7 (*,G), 46 (*,G/m)]

  17     total MFIB interfaces
```

Related Commands

Command	Description
show mroute summary	Displays multicast routing table summary information.

show mfib verbose

To display detail information about the forwarding entries and interfaces, use the **show mfib verbose** command in user EXEC or privileged EXEC mode.

show mfib verbose

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
User EXEC or Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show mfib verbose** command:

```
hostname# show mfib verbose
Entry Flags: C - Directly Connected, S - Signal, IA - Inherit A flag,
             AR - Activity Required, D - Drop
Forwarding counts: Pkt Count/Pkts per second/Avg Pkt Size/Kbits per second
Other counts: Total/RPF failed/Other drops
Interface flags: A - Accept, F - Forward, NS - Negate Signalling
             IC - Internal Copy, NP - Not platform switched
             SP - Signal Present
Interface Counts: FS Pkt Count/PS Pkt Count
(*,224.0.1.39) Flags: S K
  Forwarding: 0/0/0/0, Other: 0/0/0
(*,224.0.1.40) Flags: S K
  Forwarding: 0/0/0/0, Other: 0/0/0
(*,224.0.0.0/8) Flags: K
  Forwarding: 0/0/0/0, Other: 0/0/0
```

Related Commands

Command	Description
show mfib	Displays MFIB information in terms of forwarding entries and interfaces.
show mfib summary	Displays summary information about the number of MFIB entries and interfaces.

show mgcp

To display MGCP configuration and session information, use the **show mgcp** command in privileged EXEC mode.

show mgcp {**commands** | **sessions**} [**detail**]

Syntax Description

commands	Lists the number of MGCP commands in the command queue.
detail	(Optional) Lists additional information about each command (or session) in the output.
sessions	Lists the number of existing MGCP sessions.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **show mgcp commands** command lists the number of MGCP commands in the command queue. The **show mgcp sessions** command lists the number of existing MGCP sessions. The **detail** option includes additional information about each command (or session) in the output.

Examples

The following are examples of the **show mgcp** command options:

```
hostname# show mgcp commands
1 in use, 1 most used, 200 maximum allowed
CRCX, gateway IP: host-pc-2, transaction ID: 2052, idle: 0:00:07
hostname#

hostname# show mgcp commands detail
1 in use, 1 most used, 200 maximum allowed
CRCX, idle: 0:00:10
        Gateway IP | host-pc-2
        Transaction ID  2052
        Endpoint name | aaln/1
        Call ID | 9876543210abcdef
```

```
        Connection ID |
        Media IP | 192.168.5.7
        Media port | 6058
hostname#

hostname# show mgcp sessions
1 in use, 1 most used
Gateway IP host-pc-2, connection ID 6789af54c9, active 0:00:11
hostname#

hostname# show mgcp sessions detail
1 in use, 1 most used
Session active 0:00:14
        Gateway IP | host-pc-2
        Call ID | 9876543210abcdef
        Connection ID | 6789af54c9
        Endpoint name | aaln/1
        Media lcl port  6166
        Media rmt IP | 192.168.5.7
        Media rmt port  6058
hostname#
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
debug mgcp	Enables MGCP debug information.
inspect mgcp	Enables MGCP application inspection.
mgcp-map	Defines an MGCP map and enables MGCP map configuration mode.
show conn	Displays the connection state for different connection types.

show mmp

To display information about existing MMP sessions, use the **show mmp** command in privileged EXEC mode.

show mmp [*address*]

Syntax Description

address	Specifies the IP address of an MMP client/server.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
8.0(4)	The command was introduced.

Examples

The following example shows the use of the **show mmp** command to display information about existing MMP sessions:

```
hostname# show mmp 10.0.0.42
MMP session:: inside:10.0.0.42/5443 outside:172.23.62.204/2442
session-id=71AD3EB1-7BE8-42E0-8DC3-E96E41D4ADD5
data:: rx-bytes=1258, tx-bytes=1258
```

Related Commands

Command	Description
debug mmp	Displays inspect MMP events.
inspect mmp	Configures the MMP inspection engine.
show debug mmp	Displays current debug settings for the MMP inspection module.

show mode

To show the security context mode for the running software image and for any image in Flash memory, use the **show mode** command in privileged EXEC mode.

show mode

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show mode** command. The following example shows the current mode and the mode for the non-running image “image.bin”:

```
hostname# show mode flash:/image.bin
Firewall mode: multiple
```

The mode can be multiple or single.

Related Commands

Command	Description
context	Creates a security context in the system configuration and enters context configuration mode.
mode	Sets the context mode to single or multiple.

show module

To show information about a module installed on the ASA, use the **show module** command in user EXEC mode.

show module [*id* | **all**] [**details** | **recover** | **log** [**console**]]]

Syntax Description

all	(Default) Shows information for all modules.
console	(Optional) Shows console log information for the module.
details	(Optional) Shows additional information, including remote management configuration for modules.
id	Specifies the module ID. For a hardware module, specify the slot number, which can be **0** (for the ASA) or **1** (for an installed module). For a software module, specify the module name, either **ips** or **cxsc**.
ips	(Optional) Shows information for the IPS SSP software module.
log	(Optional) Shows log information for the module.
recover	(Optional) Shows the settings for the **hw-module** or **sw-module module recover** command.

Defaults

By default, information for all modules is shown.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context[1]	System
User EXEC	•	•	•	•	•

1. The **show module recover** command is only available in the system execution space.

Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	This command was modified to include more detail in the output.
8.2(1)	Information about the SSC is included in the output.
8.2(5)	Information about support for the ASA 5585-X and for the IPS SSP on the ASA 5585-X was added.
8.4(4.1)	We added support for the ASA CX module.
8.6(1)	For the ASA 5512-X through ASA 5555-X: the **log** and **console** keywords were added; the **ips** device ID was added.
9.1(1)	We added support for the ASA CX software module by adding the **cxsc** module ID.

Usage Guidelines

This command shows information about the modules installed in the ASA. The ASA itself also appears as a module in the display (in slot 0).

Examples

The following is sample output from the **show module** command. Module 0 is the base device; module 1 is a CSC SSM.

```
hostname# show module
Mod Card Type                                    Model              Serial No.
--- -------------------------------------------- ------------------ -----------
  0 ASA 5520 Adaptive Security Appliance         ASA5520            P3000000034
  1 ASA 5500 Series Security Services Module-20  ASA-SSM-20         0

Mod MAC Address Range                 Hw Version   Fw Version   Sw Version
--- --------------------------------- ------------ ------------ ---------------
  0 000b.fcf8.c30d to 000b.fcf8.c311  1.0          1.0(10)0     7.1(0)5
  1 000b.fcf8.012c to 000b.fcf8.012c  1.0          1.0(10)0     CSC SSM 5.0 (Build#1187)

Mod SSM Application Name           SSM Application Version
--- ------------------------------ --------------------------
  1 CSC SSM scan services are not
  1 CSC SSM                        5.0 (Build#1187)

Mod Status             Data Plane Status     Compatibility
--- ------------------ --------------------- -------------
  0 Up Sys             Not Applicable
  1 Up                 Up
```

Table 26-3 describes each field listed in the output.

Table 51-3 show module Output Fields

Field	Description
Mod	The module number, 0 or 1.
Ports	The number of ports.
Card Type	For the device shown in module 0, the type is the platform model. For the SSM in module 1, the type is the SSM type.
Model	The model number for this module.
Serial No.	The serial number.
MAC Address Range	The MAC address range for interfaces on this SSM or, for the device, the built-in interfaces.
Hw Version	The hardware version.
Fw Version	The firmware version.
Sw Version	The software version.
SSM Application Name	The name of the application running on the SSM.
SSM Application Version	The version of the application running on the SSM.

Table 51-3 show module Output Fields (continued)

Field	Description
Status	For the device in module 0, the status is Up Sys. The status of the SSM in module 1 can be any of the following: • Initializing—The SSM is being detected and the control communication is being initialized by the device. • Up—The SSM has completed initialization by the device. • Unresponsive—The device encountered an error while communicating with this SSM. • Reloading—The SSM is reloading. • Shutting Down—The SSM is shutting down. • Down—The SSM is shut down. • Recover—The SSM is attempting to download a recovery image. • No Image Present—The IPS software has not been installed.
Data Plane Status	The current state of the data plane.
Compatibility	The compatibility of the SSM relative to the rest of the device.
Slot	The physical slot number (used only in dual SSP mode).

The output of the **show module details** command varies according to which module is installed. For example, output for the CSC SSM includes fields about components of the CSC SSM software.

The following is generic sample output from the **show module 1 details** command:

```
hostname# show module 1 details
Getting details from the Service Module, please wait...
ASA 5500 Series Security Services Module-20
Model:              ASA-SSM-20
Hardware version:   V1.0
Serial Number:      12345678
Firmware version:   1.0(7)2
Software version:   4.1(1.1)S47(0.1)
MAC Address Range:  000b.fcf8.0156 to 000b.fcf8.0156
Data plane Status:  Up
Status:             Up
Mgmt IP addr:       10.89.147.13
Mgmt web ports:     443
Mgmt TLS enabled:   true
```

Table 26-4 describes each field listed in the output.

Table 51-4 show module details Output Fields

Field	Description
Mgmt IP addr	Shows the IP address for the SSM management interface.
Mgmt web ports	Shows the ports configured for the SSM management interface.
Mgmt TLS enabled	Shows whether transport layer security is enabled (true or false) for connections to the management interface of the SSM.

The following is sample output from the **show module 1 recover** command:

```
hostname# show module 1 recover
Module 1 recover parameters. . .
Boot Recovery Image: Yes
Image URL:           tftp://10.21.18.1/ids-oldimg
Port IP Address:     10.1.2.10
Port Mask :          255.255.255.0
Gateway IP Address:  10.1.2.254
```

The following is sample output from the **show module 1 details** command when an SSC is installed:

```
hostname# show module 1 details
Getting details from the Service Module, please wait...
ASA 5505 Security Services Card
Model: ASA-SSC
Hardware version: 0.1
Serial Number: JAB11370240
Firmware version: 1.0(14)3
Software version: 6.2(1)E2
MAC Address Range: 001d.45c2.e832 to 001d.45c2.e832
App. Name: IPS
App. Status: Up
App. Status Desc:
App. Version: 6.2(1)E2
Data plane Status: Up
Status: Up
Mgmt IP Addr: 209.165.201.29
Mgmt Network Mask: 255.255.224.0
Mgmt Gateway: 209.165.201.30
Mgmt Access List: 209.165.201.31/32
                  209.165.202.158/32
                  209.165.200.254/24
Mgmt Vlan: 20
```

The following is sample output from the **show module 1 details** command when an IPS SSP is installed in an ASA 5585-X:

```
hostname# show module 1 details
Getting details from the Service Module, please wait...
ASA 5500 Series Security Services Module-20
Model: ASA-SSM-20
Hardware version: V1.0
Serial Number: 12345678
Firmware version: 1.0(7)2
Software version: 4.1(1.1)S47(0.1)
MAC Address Range: 000b.fcf8.0156 to 000b.fcf8.0156
Data plane Status: Up
Status: Up
Mgmt IP addr: 10.89.147.13
Mgmt web ports: 443
Mgmt TLS enabled: true
```

The following is sample output from the **show module ips** command when the IPS software is installed in an ASA 5525-X:

```
hostname# show module ips

Mod Card Type                                    Model              Serial No.
--- -------------------------------------------- ------------------ -----------
  0 ASA 5525 Adaptive Security Appliance         ASA5525            FCH1445V00M
  1 IPS 5525 Intrusion Protection System         IPS5525            FCH1445V00M
```

```
Mod MAC Address Range                 Hw Version   Fw Version   Sw Version
--- --------------------------------- ------------ ------------ ---------------
  0 588d.0990.8928 to 588d.0990.8931  1.0                       8.6(1)
  1 588d.0990.8926 to 588d.0990.8926  N/A          N/A          7.2(1)

Mod SSM Application Name           Status           SSM Application Version
--- ------------------------------ ---------------- --------------------------
  1 IPS                            Up               7.2(1)

Mod Status             Data Plane Status     Compatibility
--- ------------------ --------------------- -------------
  0 Up Sys             Not Applicable
  1 Up                 Up
```

The following is sample output from the **show module ips** command when the IPS software installed in an ASA 5525-X has been licensed:

```
hostname# show module ips

Mod Card Type                                    Model              Serial No.
--- -------------------------------------------- ------------------ -----------
  1   IPS 5525 Intrusion Protection System       IPS5525            FCH1504V03P

Mod MAC Address Range                 Hw Version   Fw Version   Sw Version
--- --------------------------------- ------------ ------------ ---------------
  1 503d.e59c.6f89 to 503d.e59c.6f89  N/A          N/A          7.2(1)

Mod SSM Application Name           Status           SSM Application  Version
--- ------------------------------ ---------------- ---------------- ----------
  1 IPS                            Up               7.2(1)

Mod Status             Data Plane Status     Compatibility
--- ------------------ --------------------- -------------
  1 Up                 Up

Mod License Name      License Status  Time Remaining
--- ----------------- --------------- ---------------
  1 IPS Module        Enabled         7 days
```

The following is sample output from the **show module all** command when a CXSC SSP is installed in an ASA 5585-X:

```
hostname# show module all

Mod Card Type                                    Model              Serial No.
--- -------------------------------------------  ------------------ -----------
  0 ASA 5585-X Security Services Processor-10 wi  ASA5585-SSP-10     JAF1504CBRM
  1 ASA 5585-X CXSC Security Services Processor-1 ASA5585-SSP-IPS10  JAF1510BLSE

Mod MAC Address Range                 Hw Version   Fw Version   Sw Version
--- --------------------------------- ------------ ------------ ---------------
  0 5475.d05b.1d54 to 5475.d05b.1d5f  1.0          2.0(7)0      100.7(14)13
  1 5475.d05b.248c to 5475.d05b.2497  1.0          0.0(0)0      1.0

Mod SSM Application Name           Status           SSM Application Version
--- ------------------------------ ---------------- --------------------------
  1 CXSC Security Module             Up               1.0

Mod Status             Data Plane Status     Compatibility
--- ------------------ --------------------- -------------
  0 Up Sys             Not Applicable
  1 Up                 Up
```

The following is sample output from the **show module 1 details** command when a CXSC SSP is installed in an ASA 5585-X:

```
hostname# show module 1 details

Getting details from the Service Module, please wait...
ASA 5500 Series Security Services Module-20
Model: ASA5585-S10C10-K8
Hardware version:   1.0
Serial Number:      123456789
Firmware version:   1.0(9)0
Software version:   CXSC Security Module Version 1.0
App. name:          CXSC Security Module
App. version:       Version 1.0
Data plane Status:  Up
Status:             Up
HTTP Service:       Up
Activated:          Yes
Mgmt IP addr:       100.0.1.4
Mgmt web port:      8443
```

Related Commands

Command	Description
debug module-boot	Shows debugging messages about the module booting process.
hw-module module recover	Recovers an module by loading a recovery image from a TFTP server.
hw-module module reset	Shuts down an module and performs a hardware reset.
hw-module module reload	Reloads the module software.
hw-module module shutdown	Closes the module software in preparation for being powered off without losing configuration data.

show monitor-interface

To display information about the interfaces monitored for failover, use the **show monitor-interface** command in privileged EXEC mode.

show monitor-interface

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.
8.2(2)	This command was modified. The output includes IPv6 addresses.

Usage Guidelines

Because an interface can have more than one IPv6 address configured on it, only the link-local address is displayed in the **show monitor-interface** command. If both IPv4 and IPv6 addresses are configured on an interface, both addresses appear in the output. If there is no IPv4 address configured on the interface, the IPv4 address in the output appears as 0.0.0.0. If there is no IPv6 address configured on an interface, the address is simply omitted from the output.

Monitored failover interfaces can have the following status:

- Unknown—Initial status. This status can also mean the status cannot be determined.
- Normal—The interface is receiving traffic.
- Normal (Waiting)—The interface is up but has not yet received a hello packet from the corresponding interface on the peer unit. Verify that a standby IP address has been configured for the interface and that there is connectivity between the two interfaces.
- Testing—Hello messages are not heard on the interface for five poll times.
- Link Down—The interface or VLAN is administratively down.
- No Link—The physical link for the interface is down.
- Failed—No traffic is received on the interface, yet traffic is heard on the peer interface.

Examples

The following is sample output from the **show monitor-interface** command:

```
hostname# show monitor-interface

This host: Primary - Active
                Interface outside (10.86.94.88): Normal (Waiting)
                Interface management (192.168.1.1): Normal (Waiting)
                Interface failif (0.0.0.0/fe80::223:4ff:fe77:fed): Normal (Waiting)
        Other host: Secondary - Failed
                Interface outside (0.0.0.0): Unknown (Waiting)
                Interface management (0.0.0.0): Unknown (Waiting)
                Interface failif (0.0.0.0): Unknown (Waiting)
```

Related Commands

Command	Description
monitor-interface	Enables health monitoring on a specific interface

show mrib client

To display information about the MRIB client connections, use the **show mrib client** command in user EXEC or privileged EXEC mode.

show mrib client [**filter**] [**name** *client_name*]

Syntax Description

filter	(Optional) Displays client filter. Used to view information about the MRIB flags that each client owns and the flags in which each clients is interested.
name *client_name*	(Optional) Name of a multicast routing protocol that acts as a client of MRIB, such as PIM or IGMP.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
User EXEC or Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **filter** option is used to display the route and interface level flag changes that various MRIB clients have registered. This command option also shows what flags are owned by the MRIB clients.

Examples

The following sample output from the **show mrib client** command using the **filter** keyword:

```
hostname# show mrib client filter
MFWD:0 (connection id 0)
interest filter:
entry attributes: S C IA D
interface attributes: F A IC NS DP SP
groups:
include 0.0.0.0/0
interfaces:
include All
ownership filter:
groups:
include 0.0.0.0/0
interfaces:
include All
igmp:77964 (connection id 1)
```

```
ownership filter:
interface attributes: II ID LI LD
groups:
include 0.0.0.0/0
interfaces:
include All
pim:49287 (connection id 5)
interest filter:
entry attributes: E
interface attributes: SP II ID LI LD
groups:
include 0.0.0.0/0
interfaces:
include All
ownership filter:
entry attributes: L S C IA D
interface attributes: F A IC NS DP
groups:
include 0.0.0.0/0
interfaces:
include All
```

Related Commands

Command	Description
show mrib route	Displays MRIB table entries.

show mrib route

To display entries in the MRIB table, use the **show mrib route** command in user EXEC or privileged EXEC mode.

show mrib route [[*source* | *] [*group*[*/prefix-length*]]]

Syntax Description

*	(Optional) Display shared tree entries.
/prefix-length	(Optional) Prefix length of the MRIB route. A decimal value that indicates how many of the high-order contiguous bits of the address comprise the prefix (the network portion of the address). A slash mark must precede the decimal value.
group	(Optional) IP address or name of the group.
source	(Optional) IP address or name of the route source.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
User EXEC or Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The MFIB table maintains a subset of entries and flags updated from MRIB. The flags determine the forwarding and signaling behavior according to a set of forwarding rules for multicast packets.

In addition to the list of interfaces and flags, each route entry shows various counters. Byte count is the number of total bytes forwarded. Packet count is the number of packets received for this entry. The **show mfib count** command displays global counters independent of the routes.

Examples

The following is sample output from the **show mrib route** command:

```
hostname# show mrib route
IP Multicast Routing Information Base
Entry flags: L - Domain-Local Source, E - External Source to the Domain,
    C - Directly-Connected Check, S - Signal, IA - Inherit Accept, D - Drop
Interface flags: F - Forward, A - Accept, IC - Internal Copy,
    NS - Negate Signal, DP - Don't Preserve, SP - Signal Present,
    II - Internal Interest, ID - Internal Disinterest, LI - Local Interest,
```

```
LD - Local Disinterest
(*,224.0.0.0/4) RPF nbr: 10.11.1.20 Flags: L C
   Decapstunnel0 Flags: NS

(*,224.0.0.0/24) Flags: D

(*,224.0.1.39) Flags: S

(*,224.0.1.40) Flags: S
   POS0/3/0/0 Flags: II LI

(*,238.1.1.1) RPF nbr: 10.11.1.20 Flags: C
   POS0/3/0/0 Flags: F NS LI
   Decapstunnel0 Flags: A

(*,239.1.1.1) RPF nbr: 10.11.1.20 Flags: C
   POS0/3/0/0 Flags: F NS
   Decapstunnel0 Flags: A
```

Related Commands

Command	Description
show mfib count	Displays route and packet count data for the MFIB table.
show mrib route summary	Displays a summary of the MRIB table entries.

show mroute

To display the IPv4 multicast routing table, use the **show mroute** command in privileged EXEC mode.

show mroute [*group* [*source*] | **reserved**] [**active** [*rate*] | **count** | **pruned** | **summary**]

Syntax Description

active *rate*	(Optional) Displays only active multicast sources. Active sources are those sending at the specified *rate* or higher. If the *rate* is not specified, active sources are those sending at a rate of 4 kbps or higher.
count	(Optional) Displays statistics about the group and source, including number of packets, packets per second, average packet size, and bits per second.
group	(Optional) IP address or name of the multicast group as defined in the DNS hosts table.
pruned	(Optional) Displays pruned routes.
reserved	(Optional) Displays reserved groups.
source	(Optional) Source hostname or IP address.
summary	(Optional) Displays a one-line, abbreviated summary of each entry in the multicast routing table.

Defaults

If not specified, the *rate* argument defaults to 4 kbps.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **show mroute** command displays the contents of the multicast routing table. The ASA populates the multicast routing table by creating (S,G) and (*,G) entries based on PIM protocol messages, IGMP reports, and traffic. The asterisk (*) refers to all source addresses, the “S” refers to a single source address, and the “G” is the destination multicast group address. In creating (S, G) entries, the software uses the best path to that destination group found in the unicast routing table (through RPF).

To view the **mroute** commands in the running configuration, use the **show running-config mroute** command.

Examples

The following is sample output from the **show mroute** command:

```
hostname(config)# show mroute

Multicast Routing Table
Flags: D - Dense, S - Sparse, B - Bidir Group, s - SSM Group,
       C - Connected, L - Local, I - Received Source Specific Host Report,
       P - Pruned, R - RP-bit set, F - Register flag, T - SPT-bit set,
       J - Join SPT
Timers: Uptime/Expires
Interface state: Interface, State

(*, 239.1.1.40), 08:07:24/never, RP 0.0.0.0, flags: DPC
  Incoming interface: Null
  RPF nbr: 0.0.0.0
  Outgoing interface list:
    inside, Null, 08:05:45/never
    tftp, Null, 08:07:24/never

(*, 239.2.2.1), 08:07:44/never, RP 140.0.0.70, flags: SCJ
  Incoming interface: outside
  RPF nbr: 140.0.0.70
  Outgoing interface list:
    inside, Forward, 08:07:44/never
```

The following fields are shown in the **show mroute** output:

- **Flags**—Provides information about the entry.
  - **D—Dense**. Entry is operating in dense mode.
  - **S—Sparse**. Entry is operating in sparse mode.
  - **B—Bidir Group**. Indicates that a multicast group is operating in bidirectional mode.
  - **s—SSM Group**. Indicates that a multicast group is within the SSM range of IP addresses. This flag is reset if the SSM range changes.
  - **C—Connected**. A member of the multicast group is present on the directly connected interface.
  - **L—Local**. The ASA itself is a member of the multicast group. Groups are joined locally by the **igmp join-group** command (for the configured group).
  - **I—Received Source Specific Host Report**. Indicates that an (S, G) entry was created by an (S, G) report. This (S, G) report could have been created by IGMP. This flag is set only on the DR.
  - **P—Pruned**. Route has been pruned. The software keeps this information so that a downstream member can join the source.
  - **R—RP-bit set**. Indicates that the (S, G) entry is pointing toward the RP.
  - **F—Register flag**. Indicates that the software is registering for a multicast source.
  - **T—SPT-bit set**. Indicates that packets have been received on the shortest path source tree.
  - **J—Join SPT**. For (*, G) entries, indicates that the rate of traffic flowing down the shared tree is exceeding the SPT-Threshold set for the group. (The default SPT-Threshold setting is 0 kbps.) When the J - Join shortest path tree (SPT) flag is set, the next (S, G) packet received down the shared tree triggers an (S, G) join in the direction of the source, thereby causing the ASA to join the source tree.

    For (S, G) entries, indicates that the entry was created because the SPT-Threshold for the group was exceeded. When the J - Join SPT flag is set for (S, G) entries, the ASA monitors the traffic rate on the source tree and attempts to switch back to the shared tree for this source if the traffic rate on the source tree falls below the SPT-Threshold of the group for more than 1 minute.

Note The ASA measures the traffic rate on the shared tree and compares the measured rate to the SPT-Threshold of the group once every second. If the traffic rate exceeds the SPT-Threshold, the J - Join SPT flag is set on the (*, G) entry until the next measurement of the traffic rate. The flag is cleared when the next packet arrives on the shared tree and a new measurement interval is started.

If the default SPT-Threshold value of 0 kbps is used for the group, the J - Join SPT flag is always set on (*, G) entries and is never cleared. When the default SPT-Threshold value is used, the ASA immediately switches to the shortest path source tree when traffic from a new source is received.

- **Timers:Uptime/Expires**—Uptime indicates per interface how long (in hours, minutes, and seconds) the entry has been in the IP multicast routing table. Expires indicates per interface how long (in hours, minutes, and seconds) until the entry will be removed from the IP multicast routing table.
- **Interface state**—Indicates the state of the incoming or outgoing interface.
  - **Interface**—The interface name listed in the incoming or outgoing interface list.
  - **State**—Indicates that packets will either be forwarded, pruned, or null on the interface depending on whether there are restrictions due to access lists or a time-to-live (TTL) threshold.
- **(*, 239.1.1.40)** and **(* , 239.2.2.1)**—Entries in the IP multicast routing table. The entry consists of the IP address of the source followed by the IP address of the multicast group. An asterisk (*) in place of the source indicates all sources.
- **RP**—Address of the RP. For routers and access servers operating in sparse mode, this address is always 224.0.0.0.
- **Incoming interface**—Expected interface for a multicast packet from the source. If the packet is not received on this interface, it is discarded.
- **RPF nbr**—IP address of the upstream router to the source.
- **Outgoing interface list**—Interfaces through which packets will be forwarded.

Related Commands

Command	Description
clear configure mroute	Removes the **mroute** commands from the running configuration.
mroute	Configures a static multicast route.
show mroute	Displays IPv4 multicast routing table.
show running-config mroute	Displays configured multicast routes.

show nac-policy

To show the NAC policy usage statistics and the assignment of NAC policies to group policies, use the **show nac-policy** command in privileged EXEC mode.

show nac-policy [*nac-policy-name*]

Syntax Description

nac-policy-name	(Optional) Name of the NAC policy for which to display usage statistics.

Defaults

If you do not specify a name, the CLI lists all NAC policy names along with their respective statistics.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	—	—	•

Command History

Release	Modification
8.0(2)	This command was introduced.

Examples

The following example shows the data for the NAC policies named framework1 and framework2:

```
asa2(config)# show nac-policy
nac-policy framework1 nac-framework
  applied session count = 0
  applied group-policy count = 2
  group-policy list:    GroupPolicy2    GroupPolicy1
nac-policy framework2 nac-framework is not in use.
```

The first line of each NAC policy indicates its name and type (nac-framework). The CLI shows the text "is not in use" next to the policy type if the policy is not assigned to any group policies. Otherwise, the CLI displays the usage data for the group policy. Table 51-5 explains the fields in the **show nac-policy** command.

Table 51-5 show nac-policy Command Fields

Field	Description
applied session count	Cumulative number of VPN sessions to which this ASA applied the NAC policy.

Table 51-5 show nac-policy Command Fields (continued)

Field	Description
applied group-policy count	Cumulative number of group polices to which this ASA applied the NAC policy.
group-policy list	List of group policies to which this NAC policy is assigned. In this case, the usage of a group policy does not determine whether it appears in this list; if the NAC policy is assigned to a group policy in the running configuration, then the group policy appears in this list.

Related Commands

clear nac-policy	Resets the NAC policy usage statistics.
show vpn-session.db	Displays information about VPN sessions, including NAC results.
show vpn-session_summary.db	Displays the number IPsec, Cisco WebVPN, and NAC sessions.

show nameif

To view the interface name set using the **nameif** command, use the **show nameif** command in privileged EXEC mode.

show nameif [*physical_interface*[**.***subinterface*] | *mapped_name*]

Syntax Description

mapped_name	(Optional) In multiple context mode, identifies the mapped name if it was assigned using the **allocate-interface** command.
physical_interface	(Optional) Identifies the interface ID, such as **gigabitethernet0/1**. See the **interface** command for accepted values.
subinterface	(Optional) Identifies an integer between 1 and 4294967293 designating a logical subinterface.

Defaults

If you do not specify an interface, the ASA shows all interface names.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

In multiple context mode, if you mapped the interface ID in the **allocate-interface** command, you can only specify the mapped name in a context. The output for this command shows only the mapped name in the Interface column.

Examples

The following is sample output from the **show nameif** command:

```
hostname# show nameif
Interface               Name                    Security
GigabitEthernet0/0      outside                 0
GigabitEthernet0/1      inside                  100
GigabitEthernet0/2      test2                   50
```

Related Commands

Command	Description
allocate-interface	Assigns interfaces and subinterfaces to a security context.
interface	Configures an interface and enters interface configuration mode.
nameif	Sets the interface name.
show interface ip brief	Shows the interface IP address and status.

show nat

To display statistics of NAT policies, use the **show nat** command in privileged EXEC mode.

show nat [**interface** *name*] [*ip_addr mask* | {**object** | **object-group**} *name*]
[**translated** [**interface** *name*] [*ip_addr mask* | {**object** | **object-group**} *name*]] [**detail**]
[**divert-table** [**ipv6**] [**interface** *name*]]

Syntax Description

detail	(Optional) Includes more verbose expansion of the object fields.
divert-table	(Optional) Shows the NAT divert table.
interface *name*	(Optional) Specifies the source interface.
ip_addr mask	(Optional) Specifies an IP address and subnet mask.
ipv6	(Optional) Shows IPv6 entries in the divert table.
object *name*	(Optional) Specifies a network object or service object.
object-group *name*	(Optional) Specifies a network object group
translated	(Optional) Specifies the translated parameters.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.3(1)	This command was introduced.
9.0(1)	This command now supports IPv6 traffic, as well as translations between IPv4 and IPv6.

Usage Guidelines

Use the **show nat** command to show runtime representation of the NAT policy. Use the **detail** optional keyword to expand the object and view the object values. Use the additional selector fields to limit the **show nat** command output.

Examples

The following is sample output from the **show nat** command:

```
hostname# show nat
   Manual NAT Policies (Section 1)
   1 (any) to (any) source dynamic S S' destination static D' D
       translate_hits = 0, untranslate_hits = 0
```

```
   Auto NAT Policies (Section 2)
   1 (inside) to (outside) source dynamic A 2.2.2.2
       translate_hits = 0, untranslate_hits = 0

   Manual NAT Policies (Section 3)
   1 (any) to (any) source dynamic C C' destination static B' B service R R'
       translate_hits = 0, untranslate_hits = 0

hostname# show nat detail
   Manual NAT Policies (Section 1)
   1 (any) to (any) source dynamic S S' destination static D' D
       translate_hits = 0, untranslate_hits = 0
       Source - Real: 1.1.1.2/32, Mapped: 2.2.2.3/32
       Destination - Real: 10.10.10.0/24, Mapped: 20.20.20.0/24

   Auto NAT Policies (Section 2)
   1 (inside) to (outside) source dynamic A 2.2.2.2
       translate_hits = 0, untranslate_hits = 0
       Source - Real: 1.1.1.1/32, Mapped: 2.2.2.2/32

   Manual NAT Policies (Section 3)
    1 (any) to (any) source dynamic C C' destination static B' B service R R'
       translate_hits = 0, untranslate_hits = 0
       Source - Real: 11.11.11.10-11.11.11.11, Mapped: 192.168.10.10/32
       Destination - Real: 192.168.1.0/24, Mapped: 10.75.1.0/24
       Service - Real: tcp source eq 10 destination eq ftp-data , Mapped: tcp source eq
       100 destination eq 200
```

The following is sample output from the **show nat detail** command between IPv6 and IPv4:

```
hostname# show nat detail
1 (in) to (outside) source dynamic inside_nw outside_map destination static inside_map any
translate_hits = 0, untranslate_hits = 0
Source - Origin: 2001::/96, Translated: 192.168.102.200-192.168.102.210
Destination - Origin: 2001::/96, Translated: 0.0.0.0/0
```

The following is sample output from the **show nat divert ipv6** command:

```
hostname# show nat divert ipv6
Divert Table
id=0xcb9ea518, domain=divert-route
type=static, hits=0, flags=0x21, protocol=0
src ip/id=2001::/ffff:ffff:ffff:ffff:ffff:ffff::, port=0-0
dst ip/id=2001::/ffff:ffff:ffff:ffff:ffff:ffff::, port=0-0
input_ifc=in, output_ifc=outside
id=0xcf24d4b8, domain=divert-route
type=static, hits=0, flags=0x20, protocol=0
src ip/id=::/::, port=0-0
dst ip/id=2222::/ffff:ffff:ffff:ffff:ffff:ffff::, port=0-0
input_ifc=in, output_ifc=mgmt
```

Related Commands

Command	Description
clear nat counters	Clears NAT policy counters.
nat	Identifies addresses on one interface that are translated to mapped addresses on another interface.

show nat pool

To display statistics of NAT pool usage, use the **show nat pool** command in privileged EXEC mode.

show nat pool

Syntax Description

This command has no arguments or keywords.

Defaults

This command has no default settings.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.3(1)	This command was introduced.
8.4(3)	The output was modified to show the destination address for extended PAT. The PAT range was also modified depending on the use of the **flat** and **include-reserve** keywords.
9.0(1)	This command now supports IPv6 traffic.

Usage Guidelines

A NAT pool is created for each mapped protocol/IP address/port range, where the port ranges are 1-511, 512-1023, and 1024-65535 by default. If you use the **flat** keyword for a PAT pool in the **nat** command, you will see fewer, larger ranges.

Each NAT pool exists for at least 10 minutes after the last usage. The 10 minute hold-down timer is canceled if you clear the translations with **clear xlate**.

Examples

The following is sample output for the NAT pools created by a dynamic PAT rule shown by the **show running-config object network** command.

```
hostname(config)# show running-config object network
object network myhost
 host 10.10.10.10
 nat (pppoe2,inside) dynamic 10.76.11.25

hostname# show nat pool
TCP inside, address 10.76.11.25, range 1-511, allocated 0
TCP inside, address 10.76.11.25, range 512-1023, allocated 0
TCP inside, address 10.76.11.25, range 1024-65535, allocated 1
```

The following is sample output from the **show nat pool** command showing use of the PAT pool **flat** option. Without the **include-reserve** keyword, two ranges are shown; the lower range is used when a source port below 1024 is mapped to the same port.

```
hostname# show nat pool

ICMP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1-65535, allocated 2
TCP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1-1024, allocated 0
TCP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1024-65535, allocated 2
UDP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1-1024, allocated 0
UDP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1024-65535, allocated 2
```

The following is sample output from the **show nat pool** command showing use of the PAT pool **flat include-reserve** options.

```
hostname# show nat pool

ICMP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1-65535, allocated 2
TCP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1-65535, allocated 2
UDP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1-65535, allocated 2
```

The following is sample output from the **show nat pool** command showing use of the PAT pool **extended flat include-reserve** options. The important items are the parenthetical addresses. These are the destination addresses used to extend PAT.

```
ICMP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1-65535, allocated 0
ICMP PAT pool outside:dynamic-pat, address 172.16.2.200(172.16.2.99), range 1-65535,
allocated 2
TCP PAT pool outside:dynamic-pat, address 172.16.2.200(172.16.2.100), range 1-65535,
allocated 1
UDP PAT pool outside:dynamic-pat, address 172.16.2.200(172.16.2.100), range 1-65535,
allocated 1
TCP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1-65535, allocated 0
ICMP PAT pool outside:dynamic-pat, address 172.16.2.200(172.16.2.100), range 1-65535,
allocated 1
TCP PAT pool outside:dynamic-pat, address 172.16.2.200(172.16.2.99), range 1-65535,
allocated 2
UDP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1-65535, allocated 0
```

Related Commands

Command	Description
nat	Identifies addresses on one interface that are translated to mapped addresses on another interface.
show nat	Displays NAT policy statistics.

show ntp associations

To view NTP association information, use the **show ntp associations** command in user EXEC mode.

show ntp associations [**detail**]

Syntax Description

detail	(Optional) Shows additional details about each association.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
User EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

See the “Examples” section for a description of the display output.

Examples

The following is sample output from the **show ntp associations** command:

```
hostname> show ntp associations
     address         ref clock     st  when  poll  reach  delay  offset    disp
 ~172.31.32.2      172.31.32.1       5    29  1024  377     4.2   -8.59     1.6
+~192.168.13.33    192.168.1.111     3    69   128  377     4.1    3.48     2.3
*~192.168.13.57    192.168.1.111     3    32   128  377     7.9   11.18     3.6
* master (synced), # master (unsynced), + selected, - candidate, ~ configured
```

Table 51-6 shows each field description.

Table 51-6 show ntp associations Fields

Field	Description
(leading characters in display lines)	The first characters in a display line can be one or more of the following characters: • * —Synchronized to this peer. • # —Almost synchronized to this peer. • + —Peer selected for possible synchronization. • - —Peer is a candidate for selection. • ~ —Peer is statically configured, but not synchronized.
address	The address of the NTP peer.
ref clock	The address of the reference clock of the peer.
st	The stratum of the peer.
when	The time since the last NTP packet was received from the peer.
poll	The polling interval (in seconds).
reach	The peer reachability (as a bit string, in octal).
delay	The round-trip delay to the peer (in milliseconds).
offset	The relative time of the peer clock to the local clock (in milliseconds).
disp	The dispersion value.

The following is sample output from the **show ntp associations detail** command:

```
hostname> show ntp associations detail
172.23.56.249 configured, our_master, sane, valid, stratum 4
ref ID 172.23.56.225, time c0212639.2ecfc9e0 (20:19:05.182 UTC Fri Feb 22 2002)
our mode client, peer mode server, our poll intvl 128, peer poll intvl 128
root delay 38.04 msec, root disp 9.55, reach 177, sync dist 156.021
delay 4.47 msec, offset -0.2403 msec, dispersion 125.21
precision 2**19, version 3
org time c02128a9.731f127b (20:29:29.449 UTC Fri Feb 22 2002)
rcv time c02128a9.73c1954b (20:29:29.452 UTC Fri Feb 22 2002)
xmt time c02128a9.6b3f729e (20:29:29.418 UTC Fri Feb 22 2002)
filtdelay =     4.47    4.58    4.97    5.63    4.79    5.52    5.87   0.00
filtoffset =   -0.24   -0.36   -0.37    0.30   -0.17    0.57   -0.74   0.00
filterror =     0.02    0.99    1.71    2.69    3.66    4.64    5.62   16000.0
```

Table 51-7 shows each field description.

Table 51-7 show ntp associations detail Fields

Field	Description
IP-address configured	The server (peer) IP address.
(status)	• our_master—The ASA is synchronized to this peer. • selected—Peer is selected for possible synchronization. • candidate—Peer is a candidate for selection.

Table 51-7 show ntp associations detail Fields (continued)

Field	Description
(sanity)	• sane—The peer passes basic sanity checks. • insane—The peer fails basic sanity checks.
(validity)	• valid—The peer time is believed to be valid. • invalid—The peer time is believed to be invalid. • leap_add—The peer is signalling that a leap second will be added. • leap-sub—The peer is signalling that a leap second will be subtracted.
stratum	The stratum of the peer.
(reference peer)	unsynced—The peer is not synchronized to any other machine. ref ID—The address of the machine that the peer is synchronized to.
time	The last time stamp the peer received from its master.
our mode client	Our mode relative to the peer, which is always client.
peer mode server	The mode of the peer relative to the server.
our poll intvl	Our poll interval to the peer.
peer poll intvl	The peer poll interval to us.
root delay	The delay along the path to the root (ultimate stratum 1 time source).
root disp	The dispersion of the path to the root.
reach	The peer reachability (as a bit string in octal).
sync dist	The peer synchronization distance.
delay	The round-trip delay to the peer.
offset	The offset of the peer clock relative to our clock.
dispersion	The dispersion of the peer clock.
precision	The precision of the peer clock (in hertz).
version	The NTP version number that the peer is using.
org time	The originate time stamp.
rcv time	The receive time stamp.
xmt time	The transmit time stamp.
filtdelay	The round-trip delay (in milliseconds) of each sample.
filtoffset	The clock offset (in milliseconds) of each sample.
filterror	The approximate error of each sample.

Related Commands

Command	Description
ntp authenticate	Enables NTP authentication.
ntp authentication-key	Sets an encrypted authentication key to synchronize with an NTP server.
ntp server	Identifies an NTP server.

Command	Description
ntp trusted-key	Provides a key ID for the ASA to use in packets for authentication with an NTP server.
show ntp status	Shows the status of the NTP association.

show ntp status

To show the status of each NTP association, use the **show ntp status** command in user EXEC mode.

show ntp status

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
User EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

See the “Examples” section for a description of the display output.

Examples

The following is sample output from the **show ntp status** command:

```
hostname> show ntp status
Clock is synchronized, stratum 5, reference is 172.23.56.249
nominal freq is 99.9984 Hz, actual freq is 100.0266 Hz, precision is 2**6
reference time is c02128a9.73c1954b (20:29:29.452 UTC Fri Feb 22 2002)
clock offset is -0.2403 msec, root delay is 42.51 msec
root dispersion is 135.01 msec, peer dispersion is 125.21 msec
```

Table 51-8 shows each field description.

Table 51-8 show ntp status Fields

Field	Description
Clock	• synchronized—The ASA is synchronized to an NTP server. • unsynchronized—The ASA is not synchronized to an NTP server.
stratum	NTP stratum of this system.
reference	The address of the NTP server to which the ASA is synchronized.
nominal freq	The nominal frequency of the system hardware clock.

Table 51-8 show ntp status Fields (continued)

Field	Description
actual freq	The measured frequency of the system hardware clock.
precision	The precision of the clock of this system (in hertz).
reference time	The reference time stamp.
clock offset	The offset of the system clock to the synchronized peer.
root delay	The total delay along the path to the root clock.
root dispersion	The dispersion of the root path.
peer dispersion	The dispersion of the synchronized peer.

Related Commands

Command	Description
ntp authenticate	Enables NTP authentication.
ntp authentication-key	Sets an encrypted authentication key to synchronize with an NTP server.
ntp server	Identifies an NTP server.
ntp trusted-key	Provides a key ID for the ASA to use in packets for authentication with an NTP server.
show ntp associations	Shows the NTP servers with which the ASA is associated.

show object-group

To display object group information and the relevant hit count if the object group is of the network object-group type, use the **show object-group** command in privileged EXEC mode.

show object-group [**protocol** | **service** | **icmp-type** | **id** *object-group name*]

Syntax Description

icmp-type	(Optional) An ICMP-type object group.
id	(Optional) Identifies the existing object group.
object-group name	(Optional) Assigns a given name to the object group.
protocol	(Optional) Protocol-type object group.
service	(Optional) Service-type object.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.3(1)	This command was introduced.

Usage Guidelines

A routine attempt to show object groups also shows the object hit count if the object group is of the network object-group type. Hit counts do not display for service, protocol, and icmp-type object groups.

Examples

The following is sample output from the **show object-group** command and shows information about the network object group named “Anet”:

```
hostname# show object-group id Anet
Object-group network Anet (hitcnt=10)
   Description OBJ SEARCH ALG APPLIED
   network-object 1.1.1.0 255.255.255.0 (hitcnt=4)
   network-object 2.2.2.0 255.255.255.0 (hitcnt=6)
```

The following is sample output from the **show object-group** command and shows information about a service group:

```
hostname (config)# show object-group service
object-group service B-Serobj
   description its a service group
```

```
   service-object tcp eq bgp

   object-group protocol C-grp-proto
   protocol-object ospf
```

The following is sample output from the **show object-group** command and shows information about a protocol:

```
hostname (config)# show object-group protocol
object-group protocol C-grp-proto
   protocol-object ospf
```

Related Commands

Command	Description
clear object-group	Clears the network objects hit count for a given object group.
show access list	Shows all access lists, relevant expanded access list entries, and hit counts.

show ospf

To display the general information about the OSPF routing processes, use the **show ospf** command in privileged EXEC mode.

show ospf [*pid* [*area_id*]]

Syntax Description

area_id	(Optional) ID of the area that is associated with the OSPF address range.
pid	(Optional) The ID of the OSPF process.

Defaults

Lists all OSPF processes if no *pid* is specified.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

If the *pid* is included, only information for the specified routing process is included.

Examples

The following is sample output from the **show ospf** command, showing how to display general information about a specific OSPF routing process:

```
hostname# show ospf 5
 Routing Process "ospf 5" with ID 127.0.0.1 and Domain ID 0.0.0.5
 Supports only single TOS(TOS0) routes
 Supports opaque LSA
 SPF schedule delay 5 secs, Hold time between two SPFs 10 secs
 Minimum LSA interval 5 secs. Minimum LSA arrival 1 secs
 Number of external LSA 0. Checksum Sum 0x     0
 Number of opaque AS LSA 0. Checksum Sum 0x     0
 Number of DCbitless external and opaque AS LSA 0
 Number of DoNotAge external and opaque AS LSA 0
 Number of areas in this router is 0. 0 normal 0 stub 0 nssa
 External flood list length 0
```

The following is sample output from the **show ospf** command, showing how to display general information about all OSPF routing processes:

```
hostname# show ospf
 Routing Process "ospf 5" with ID 127.0.0.1 and Domain ID 0.0.0.5
 Supports only single TOS(TOS0) routes
 Supports opaque LSA
 SPF schedule delay 5 secs, Hold time between two SPFs 10 secs
 Minimum LSA interval 5 secs. Minimum LSA arrival 1 secs
 Number of external LSA 0. Checksum Sum 0x     0
 Number of opaque AS LSA 0. Checksum Sum 0x     0
 Number of DCbitless external and opaque AS LSA 0
 Number of DoNotAge external and opaque AS LSA 0
 Number of areas in this router is 0. 0 normal 0 stub 0 nssa
 External flood list length 0

 Routing Process "ospf 12" with ID 172.23.59.232 and Domain ID 0.0.0.12
 Supports only single TOS(TOS0) routes
 Supports opaque LSA
 SPF schedule delay 5 secs, Hold time between two SPFs 10 secs
 Minimum LSA interval 5 secs. Minimum LSA arrival 1 secs
 Number of external LSA 0. Checksum Sum 0x     0
 Number of opaque AS LSA 0. Checksum Sum 0x     0
 Number of DCbitless external and opaque AS LSA 0
 Number of DoNotAge external and opaque AS LSA 0
 Number of areas in this router is 0. 0 normal 0 stub 0 nssa
 External flood list length 0
```

Related Commands

Command	Description
router ospf	Enables OSPF routing and configures global OSPF routing parameters.

show ospf border-routers

To display the internal OSPF routing table entries to ABRs and ASBRs, use the **show ospf border-routers** command in privileged EXEC mode.

show ospf border-routers

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Examples

The following is sample output from the show **ospf border-routers** command:

```
hostname# show ospf border-routers

OSPF Process 109 internal Routing Table

Codes: i - Intra-area route, I - Inter-area route

i 192.168.97.53 [10] via 192.168.1.53, fifth, ABR, Area 0, SPF 20
i 192.168.103.51 [10] via 192.168.96.51, outside, ASBR, Area 192.168.12.0, SPF 14
i 192.168.103.52 [10] via 192.168.96.51, outside, ABR/ASBR, Area 192.168.12.0, SPF 14
```

Related Commands

Command	Description
router ospf	Enables OSPF routing and configures global OSPF routing parameters.

show ospf database

To display the information contained in the OSPF topological database on the ASA, use the **show ospf database** command in privileged EXEC mode.

show ospf [*pid* [*area_id*]] **database** [**router** | **network** | **summary** | **asbr-summary** | **external** | **nssa-external**] [*lsid*] [**internal**] [**self-originate** | **adv-router** *addr*]

show ospf [*pid* [*area_id*]] **database database-summary**

Syntax Description

addr	(Optional) Router address.
adv-router	(Optional) Advertised router.
area_id	(Optional) ID of the area that is associated with the OSPF address range.
asbr-summary	(Optional) Displays an ASBR list summary.
database	Displays the database information.
database-summary	(Optional) Displays the complete database summary list.
external	(Optional) Displays routes external to a specified autonomous system.
internal	(Optional) Routes that are internal to a specified autonomous system.
lsid	(Optional) LSA ID.
network	(Optional) Displays the OSPF database information about the network.
nssa-external	(Optional) Displays the external not-so-stubby-area list.
pid	(Optional) ID of the OSPF process.
router	(Optional) Displays the router.
self-originate	(Optional) Displays the information for the specified autonomous system.
summary	(Optional) Displays a summary of the list.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

The OSPF routing-related **show** commands are available in privileged mode on the ASA. You do not need to be in an OSPF configuration mode to use the OSPF-related **show** commands.

Examples

The following is sample output from the **show ospf database** command:

```
hostname# show ospf database
OSPF Router with ID(192.168.1.11) (Process ID 1)

                Router Link States(Area 0)
Link ID   ADV Router   Age   Seq# Checksum Link count
192.168.1.8 192.168.1.8 1381 0x8000010D    0xEF60 2
192.168.1.11 192.168.1.11 1460 0x800002FE    0xEB3D 4
192.168.1.12 192.168.1.12 2027 0x80000090    0x875D 3
192.168.1.27 192.168.1.27 1323 0x800001D6    0x12CC 3

                Net Link States(Area 0)
Link ID ADV Router   Age   Seq# Checksum
172.16.1.27 192.168.1.27 1323 0x8000005B    0xA8EE
172.17.1.11 192.168.1.11 1461 0x8000005B    0x7AC

                Type-10 Opaque Link Area Link States (Area 0)
Link ID ADV Router   Age Seq# Checksum Opaque ID
10.0.0.0 192.168.1.11 1461 0x800002C8    0x8483   0
10.0.0.0 192.168.1.12 2027 0x80000080    0xF858   0
10.0.0.0 192.168.1.27 1323 0x800001BC    0x919B   0
10.0.0.1 192.168.1.11 1461 0x8000005E    0x5B43   1
```

The following is sample output from the **show ospf database asbr-summary** command:

```
hostname# show ospf database asbr-summary
OSPF Router with ID(192.168.239.66) (Process ID 300)
Summary ASB Link States(Area 0.0.0.0)
Routing Bit Set on this LSA
LS age: 1463
Options: (No TOS-capability)
LS Type: Summary Links(AS Boundary Router)
Link State ID: 172.16.245.1 (AS Boundary Router address)
Advertising Router: 172.16.241.5
LS Seq Number: 80000072
Checksum: 0x3548
Length: 28
Network Mask: 0.0.0.0
TOS: 0 Metric: 1
```

The following is sample output from the **show ospf database router** command:

```
hostname# show ospf database router
OSPF Router with id(192.168.239.66) (Process ID 300)
Router Link States(Area 0.0.0.0)
Routing Bit Set on this LSA
LS age: 1176
Options: (No TOS-capability)
LS Type: Router Links
Link State ID: 10.187.21.6
Advertising Router: 10.187.21.6
LS Seq Number: 80002CF6
Checksum: 0x73B7
Length: 120
AS Boundary Router
Number of Links: 8
Link connected to: another Router (point-to-point)
(link ID) Neighboring Router ID: 10.187.21.5
```

```
(Link Data) Router Interface address: 10.187.21.6
Number of TOS metrics: 0
TOS 0 Metrics: 2
```

The following is sample output from the **show ospf database network** command:

```
hostname# show ospf database network
OSPF Router with id(192.168.239.66) (Process ID 300)
Displaying Net Link States(Area 0.0.0.0)
LS age: 1367
Options: (No TOS-capability)
LS Type: Network Links
Link State ID: 10.187.1.3 (address of Designated Router)
Advertising Router: 192.168.239.66
LS Seq Number: 800000E7
Checksum: 0x1229
Length: 52
Network Mask: 255.255.255.0
Attached Router: 192.168.239.66
Attached Router: 10.187.241.5
Attached Router: 10.187.1.1
Attached Router: 10.187.54.5
Attached Router: 10.187.1.5
```

The following is sample output from the **show ospf database summary** command:

```
hostname# show ospf database summary
OSPF Router with id(192.168.239.66) (Process ID 300)
Displaying Summary Net Link States(Area 0.0.0.0)
LS age: 1401
Options: (No TOS-capability)
LS Type: Summary Links(Network)
Link State ID: 10.187.240.0 (summary Network Number)
Advertising Router: 10.187.241.5
LS Seq Number: 80000072
Checksum: 0x84FF
Length: 28
Network Mask: 255.255.255.0 TOS: 0 Metric: 1
```

The following is sample output from the **show ospf database external** command:

```
hostname# show ospf database external
OSPF Router with id(192.168.239.66) (Autonomous system 300)

                  Displaying AS External Link States
LS age: 280
Options: (No TOS-capability)
LS Type: AS External Link
Link State ID: 172.16.0.0 (External Network Number)
Advertising Router: 10.187.70.6
LS Seq Number: 80000AFD
Checksum: 0xC3A
Length: 36
Network Mask: 255.255.0.0

      Metric Type: 2 (Larger than any link state path)
TOS: 0
Metric: 1
Forward Address: 0.0.0.0
External Route Tag: 0
```

Related Commands

Command	Description
router ospf	Enables OSPF routing and configures global OSPF routing parameters.

show ospf flood-list

To display a list of OSPF LSAs waiting to be flooded over an interface, use the **show ospf flood-list** command in privileged EXEC mode.

show ospf flood-list *interface_name*

Syntax Description

interface_name	The name of the interface for which to display neighbor information.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

The OSPF routing-related **show** commands are available in privileged mode on the ASA. You do not need to be in an OSPF configuration mode to use the OSPF-related **show** commands.

Examples

The following is sample output from the **show ospf flood-list** command:

```
hostname# show ospf flood-list outside

  Interface outside, Queue length 20
  Link state flooding due in 12 msec

  Type  LS ID          ADV RTR          Seq NO       Age   Checksum
     5  10.2.195.0     192.168.0.163    0x80000009   0     0xFB61
     5  10.1.192.0     192.168.0.163    0x80000009   0     0x2938
     5  10.2.194.0     192.168.0.163    0x80000009   0     0x757
     5  10.1.193.0     192.168.0.163    0x80000009   0     0x1E42
     5  10.2.193.0     192.168.0.163    0x80000009   0     0x124D
     5  10.1.194.0     192.168.0.163    0x80000009   0     0x134C
```

Related Commands

Command	Description
router ospf	Enables OSPF routing and configures global OSPF routing parameters.

show ospf interface

To display the OSPF-related interface information, use the **show ospf interface** command in privileged EXEC mode.

show ospf interface [*interface_name*]

Syntax Description

interface_name	(Optional) Name of the interface for which to display the OSPF-related information.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

When used without the *interface_name* argument, the OSPF information for all interfaces is shown.

Examples

The following is sample output from the **show ospf interface** command:

```
hostname# show ospf interface inside
inside is up, line protocol is up
Internet Address 192.168.254.202, Mask 255.255.255.0, Area 0.0.0.0
AS 201, Router ID 192.77.99.1, Network Type BROADCAST, Cost: 10
Transmit Delay is 1 sec, State OTHER, Priority 1
Designated Router id 192.168.254.10, Interface address 192.168.254.10
Backup Designated router id 192.168.254.28, Interface addr 192.168.254.28
Timer intervals configured, Hello 10, Dead 60, Wait 40, Retransmit 5
Hello due in 0:00:05
Neighbor Count is 8, Adjacent neighbor count is 2
  Adjacent with neighbor 192.168.254.28 (Backup Designated Router)
  Adjacent with neighbor 192.168.254.10 (Designated Router)
```

Related Commands

Command	Description
interface	Enters interface configuration mode.

show ospf neighbor

To display the OSPF-neighbor information on a per-interface basis, use the **show ospf neighbor** command in privileged EXEC mode.

show ospf neighbor [**detail** | *interface_name* [*nbr_router_id*]]

Syntax Description

detail	(Optional) Lists detail information for the specified router.
interface_name	(Optional) Name of the interface for which to display neighbor information.
nbr_router_id	(Optional) Router ID of the neighbor router.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Examples

The following is sample output from the **show ospf neighbor** command. It shows how to display the OSPF-neighbor information on a per-interface basis.

```
hostname# show ospf neighbor outside

Neighbor 192.168.5.2, interface address 10.225.200.28
    In the area 0 via interface outside
    Neighbor priority is 1, State is FULL, 6 state changes
    DR is 10.225.200.28 BDR is 10.225.200.30
    Options is 0x42
    Dead timer due in 00:00:36
    Neighbor is up for 00:09:46
  Index 1/1, retransmission queue length 0, number of retransmission 1
    First 0x0(0)/0x0(0) Next 0x0(0)/0x0(0)
    Last retransmission scan length is 1, maximum is 1
    Last retransmission scan time is 0 msec, maximum is 0 msec
```

Related Commands

Command	Description
neighbor	Configures OSPF routers interconnecting to non-broadcast networks.
router ospf	Enables OSPF routing and configures global OSPF routing parameters.

show ospf request-list

To display a list of all LSAs that are requested by a router, use the **show ospf request-list** command in privileged EXEC mode.

show ospf request-list *nbr_router_id interface_name*

Syntax Description

interface_name	Name of the interface for which to display neighbor information. Displays the list of all LSAs that are requested by the router from this interface.
nbr_router_id	Router ID of the neighbor router. Displays the list of all LSAs that are requested by the router from this neighbor.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Examples

The following is sample output from the **show ospf request-list** command:

```
hostname# show ospf request-list 192.168.1.12 inside

          OSPF Router with ID (192.168.1.11) (Process ID 1)

  Neighbor 192.168.1.12, interface inside address 172.16.1.12

  Type   LS ID          ADV RTR        Seq NO       Age   Checksum
     1   192.168.1.12   192.168.1.12   0x8000020D   8     0x6572
```

Related Commands

Command	Description
show ospf retransmission-list	Displays a list of all LSAs waiting to be resent.

show ospf retransmission-list

To display a list of all LSAs waiting to be resent, use the **show ospf retransmission-list** command in privileged EXEC mode.

show ospf retransmission-list *nbr_router_id interface_name*

Syntax Description

interface_name	Name of the interface for which to display neighbor information.
nbr_router_id	Router ID of the neighbor router.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

The OSPF routing-related **show** commands are available in privileged mode on the ASA. You do not need to be in an OSPF configuration mode to use the OSPF-related **show** commands.

The *nbr_router_id* argument displays the list of all LSAs that are waiting to be resent for this neighbor.

The *interface_name* argument displays the list of all LSAs that are waiting to be resent for this interface.

Examples

The following is sample output from the **show ospf retransmission-list** command, where the *nbr_router_id* argument is 192.168.1.11 and the *if_name* argument is outside:

```
hostname# show ospf retransmission-list 192.168.1.11 outside

         OSPF Router with ID (192.168.1.12) (Process ID 1)

  Neighbor 192.168.1.11, interface outside address 172.16.1.11
  Link state retransmission due in 3764 msec, Queue length 2


  Type   LS ID          ADV RTR        Seq NO       Age   Checksum
     1   192.168.1.12   192.168.1.12   0x80000210   0     0xB196
```

Related Commands

Command	Description
show ospf request-list	Displays a list of all LSAs that are requested by a router.

show ospf summary-address

To display a list of all summary address redistribution information that is configured under an OSPF process, use the **show ospf summary-address** command in privileged EXEC mode.

show ospf summary-address

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Examples

The following shows sample output from the **show ospf summary-address** command. It shows how to display a list of all summary address redistribution information before a summary address has been configured for an OSPF process with the ID of 5.

```
hostname# show ospf 5 summary-address

OSPF Process 2, Summary-address

10.2.0.0/255.255.0.0 Metric -1, Type 0, Tag 0
10.2.0.0/255.255.0.0 Metric -1, Type 0, Tag 10
```

Related Commands

Command	Description
summary-address	Creates aggregate addresses for OSPF.

show ospf traffic

To display a list of different types of packets that have been processed (sent or received) by a particular OSPF instance, use the **show ospf traffic** command in privileged EXEC mode. With this command, you can get a snapshot of the different types of OSPF packets that are being being processed without enabling debugging. If there are two OSPF instances configured, the show ospf traffic command displays the statistics for both instances with the process ID of each instance. You can also display the statistics for a single instance by using the **show ospf** *process_id* **traffic** command.

show ospf traffic

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

With this command, you can get a snapshot of the different types of OSPF packets that are being being processed without enabling debugging. If there are two OSPF instances configured, the **show ospf traffic** command displays the statistics for both instances with the process ID of each instance. You can also display the statistics for a single instance by using the **show ospf** *process_id* **traffic** command.

Examples

The following shows sample output from the **show ospf traffic** command.

```
hostname# show ospf traffic

OSPF statistics (Process ID 70):

       Rcvd: 244 total, 0 checksum errors
             234 hello, 4 database desc, 1 link state req
             3 link state updates, 2 link state acks
       Sent: 485 total
             472 hello, 7 database desc, 1 link state req
             3 link state updates, 2 link state acks
```

Related Commands

Command	Description
show ospf virtual-links	Displays the parameters and the current state of OSPF virtual links.

show ospf virtual-links

To display the parameters and the current state of OSPF virtual links, use the **show ospf virtual-links** command in privileged EXEC mode.

show ospf virtual-links

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Examples

The following is sample output from the **show ospf virtual-links** command:

```
hostname# show ospf virtual-links

Virtual Link to router 192.168.101.2 is up
Transit area 0.0.0.1, via interface Ethernet0, Cost of using 10
Transmit Delay is 1 sec, State POINT_TO_POINT
Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
Hello due in 0:00:08
Adjacency State FULL
```

Related Commands

Command	Description
area virtual-link	Defines an OSPF virtual link.

CHAPTER 52

show nac-policy through show ospf virtual-links Commands

show nac-policy

To show the NAC policy usage statistics and the assignment of NAC policies to group policies, use the **show nac-policy** command in privileged EXEC mode.

show nac-policy [*nac-policy-name*]

Syntax Description

nac-policy-name	(Optional) Name of the NAC policy for which to display usage statistics.

Defaults

If you do not specify a name, the CLI lists all NAC policy names along with their respective statistics.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	—	—	•

Command History

Release	Modification
8.0(2)	This command was introduced.

Examples

The following example shows the data for the NAC policies named framework1 and framework2:

```
asa2(config)# show nac-policy
nac-policy framework1 nac-framework
  applied session count = 0
  applied group-policy count = 2
  group-policy list:    GroupPolicy2    GroupPolicy1
nac-policy framework2 nac-framework is not in use.
```

The first line of each NAC policy indicates its name and type (nac-framework). The CLI shows the text "is not in use" next to the policy type if the policy is not assigned to any group policies. Otherwise, the CLI displays the usage data for the group policy. Table 52-1 explains the fields in the **show nac-policy** command.

Table 52-1 show nac-policy Command Fields

Field	Description
applied session count	Cumulative number of VPN sessions to which this ASA applied the NAC policy.

Table 52-1 show nac-policy Command Fields

Field	Description
applied group-policy count	Cumulative number of group polices to which this ASA applied the NAC policy.
group-policy list	List of group policies to which this NAC policy is assigned. In this case, the usage of a group policy does not determine whether it appears in this list; if the NAC policy is assigned to a group policy in the running configuration, then the group policy appears in this list.

Related Commands

clear nac-policy	Resets the NAC policy usage statistics.
show vpn-session.db	Displays information about VPN sessions, including NAC results.
show vpn-session_summary.db	Displays the number IPSec, Cisco WebVPN, and NAC sessions.

show nameif

To view the interface name set using the **nameif** command, use the show nameif command in privileged EXEC mode.

show nameif [*physical_interface*[**.***subinterface*] | *mapped_name*]

Syntax Description

mapped_name	(Optional) In multiple context mode, identifies the mapped name if it was assigned using the **allocate-interface** command.
physical_interface	(Optional) Identifies the interface ID, such as **gigabitethernet0/1**. See the **interface** command for accepted values.
subinterface	(Optional) Identifies an integer between 1 and 4294967293 designating a logical subinterface.

Defaults

If you do not specify an interface, the ASA shows all interface names.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

In multiple context mode, if you mapped the interface ID in the **allocate-interface** command, you can only specify the mapped name in a context. The output for this command shows only the mapped name in the Interface column.

Examples

The following is sample output from the **show nameif** command:

```
hostname# show nameif
Interface               Name                    Security
GigabitEthernet0/0      outside                 0
GigabitEthernet0/1      inside                  100
GigabitEthernet0/2      test2                   50
```

Related Commands

Command	Description
allocate-interface	Assigns interfaces and subinterfaces to a security context.
interface	Configures an interface and enters interface configuration mode.
nameif	Sets the interface name.
show interface ip brief	Shows the interface IP address and status.

show nat

To display statistics of NAT policies, use the **show nat** command in privileged EXEC mode.

show nat [**interface** *name*] [*ip_addr mask* | {**object** | **object-group**} *name*]
[**translated** [**interface** *name*] [*ip_addr mask* | {**object** | **object-group**} *name*]] [**detail**]
[**divert-table** [**ipv6**] [**interface** *name*]]

Syntax Description

detail	(Optional) Includes more verbose expansion of the object fields.
divert-table	(Optional) Shows the NAT divert table.
interface *name*	(Optional) Specifies the source interface.
ip_addr mask	(Optional) Specifies an IP address and subnet mask.
ipv6	(Optional) Shows IPv6 entries in the divert table.
object *name*	(Optional) Specifies a network object or service object.
object-group *name*	(Optional) Specifies a network object group
translated	(Optional) Specifies the translated parameters.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.3(1)	This command was introduced.
9.0(1)	This command now supports IPv6 traffic, as well as translations between IPv4 and IPv6.

Usage Guidelines

Use the **show nat** command to show runtime representation of the NAT policy. Use the **detail** optional keyword to expand the object and view the object values. Use the additional selector fields to limit the **show nat** command output.

Examples

The following is sample output from the **show nat** command:

```
hostname# show nat
   Manual NAT Policies (Section 1)
   1 (any) to (any) source dynamic S S' destination static D' D
       translate_hits = 0, untranslate_hits = 0
```

```
   Auto NAT Policies (Section 2)
   1 (inside) to (outside) source dynamic A 2.2.2.2
       translate_hits = 0, untranslate_hits = 0

   Manual NAT Policies (Section 3)
   1 (any) to (any) source dynamic C C' destination static B' B service R R'
       translate_hits = 0, untranslate_hits = 0

hostname# show nat detail
   Manual NAT Policies (Section 1)
   1 (any) to (any) source dynamic S S' destination static D' D
       translate_hits = 0, untranslate_hits = 0
       Source - Real: 1.1.1.2/32, Mapped: 2.2.2.3/32
       Destination - Real: 10.10.10.0/24, Mapped: 20.20.20.0/24

   Auto NAT Policies (Section 2)
   1 (inside) to (outside) source dynamic A 2.2.2.2
       translate_hits = 0, untranslate_hits = 0
       Source - Real: 1.1.1.1/32, Mapped: 2.2.2.2/32

   Manual NAT Policies (Section 3)
    1 (any) to (any) source dynamic C C' destination static B' B service R R'
       translate_hits = 0, untranslate_hits = 0
       Source - Real: 11.11.11.10-11.11.11.11, Mapped: 192.168.10.10/32
       Destination - Real: 192.168.1.0/24, Mapped: 10.75.1.0/24
       Service - Real: tcp source eq 10 destination eq ftp-data , Mapped: tcp source eq
       100 destination eq 200
```

The following is sample output from the **show nat detail** command between IPv6 and IPv4:

```
hostname# show nat detail
1 (in) to (outside) source dynamic inside_nw outside_map destination static inside_map any
translate_hits = 0, untranslate_hits = 0
Source - Origin: 2001::/96, Translated: 192.168.102.200-192.168.102.210
Destination - Origin: 2001::/96, Translated: 0.0.0.0/0
```

The following is sample output from the **show nat divert ipv6** command:

```
hostname# show nat divert ipv6
Divert Table
id=0xcb9ea518, domain=divert-route
type=static, hits=0, flags=0x21, protocol=0
src ip/id=2001::/ffff:ffff:ffff:ffff:ffff:ffff::, port=0-0
dst ip/id=2001::/ffff:ffff:ffff:ffff:ffff:ffff::, port=0-0
input_ifc=in, output_ifc=outside
id=0xcf24d4b8, domain=divert-route
type=static, hits=0, flags=0x20, protocol=0
src ip/id=::/::, port=0-0
dst ip/id=2222::/ffff:ffff:ffff:ffff:ffff:ffff::, port=0-0
input_ifc=in, output_ifc=mgmt
```

Related Commands

Command	Description
clear nat counters	Clears NAT policy counters.
nat	Identifies addresses on one interface that are translated to mapped addresses on another interface.

show nat divert-table

To display statistics of NAT divert table, use the **show nat divert-table** command in privileged EXEC mode.

show nat divert-table [**ipv6**] [**interface** *name*]

Syntax Description

divert-table	Shows the NAT divert table.
ipv6	(Optional) Shows IPv6 entries in the divert table.
interface *name*	(Optional) Specifies the source interface.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.4(2)	This command was introduced.

Usage Guidelines

Use the **show nat divert-table** command to show runtime representation of the NAT divert table. Use the **ipv6** optional keyword to view the IPv6 entries in the divert table. Use the **interface** optional keyword to view the NAT divert table for the specific source interface.

Examples

The following is sample output from the **show nat divert-table** command:

```
hostname# show nat divert-table
Divert Table
id=0xad1521b8, domain=twice-nat section=1 ignore=no
        type=none, hits=0, flags=0x9, protocol=0
        src ip/id=0.0.0.0, mask=0.0.0.0, port=0-0
        dst ip/id=10.86.119.255, mask=255.255.255.255, port=0-0
        input_ifc=outside, output_ifc=NP Identity Ifc
id=0xad1523a8, domain=twice-nat section=1 ignore=no
        type=none, hits=0, flags=0x9, protocol=0
        src ip/id=0.0.0.0, mask=0.0.0.0, port=0-0
        dst ip/id=10.86.116.0, mask=255.255.255.255, port=0-0
        input_ifc=outside, output_ifc=NP Identity Ifc
id=0xad1865c0, domain=twice-nat section=1 ignore=no
        type=none, hits=0, flags=0x9, protocol=0
        src ip/id=0.0.0.0, mask=0.0.0.0, port=0-0
```

```
        dst ip/id=192.168.255.255, mask=255.255.255.255, port=0-0
        input_ifc=amallio-wizard, output_ifc=NP Identity Ifc
id=0xad1867b0, domain=twice-nat section=1 ignore=no
        type=none, hits=0, flags=0x9, protocol=0
        src ip/id=0.0.0.0, mask=0.0.0.0, port=0-0
        dst ip/id=192.168.0.0, mask=255.255.255.255, port=0-0
        input_ifc=amallio-wizard, output_ifc=NP Identity Ifc
id=0xad257bf8, domain=twice-nat section=1 ignore=no
        type=none, hits=0, flags=0x9, protocol=0
        src ip/id=0.0.0.0, mask=0.0.0.0, port=0-0
        dst ip/id=172.27.48.255, mask=255.255.255.255, port=0-0
        input_ifc=folink, output_ifc=NP Identity Ifc
id=0xad257db8, domain=twice-nat section=1 ignore=no
        type=none, hits=0, flags=0x9, protocol=0
        src ip/id=0.0.0.0, mask=0.0.0.0, port=0-0
        dst ip/id=172.27.48.0, mask=255.255.255.255, port=0-0
        input_ifc=folink, output_ifc=NP Identity Ifc
```

Related Commands

Command	Description
clear nat counters	Clears NAT policy counters.
nat	Identifies addresses on one interface that are translated to mapped addresses on another interface.
show nat	Displays runtime representation of the NAT policies.

show nat pool

To display statistics of NAT pool usage, use the **show nat pool** command in privileged EXEC mode.

show nat pool [**cluster**]

Syntax Description

cluster	(Optional) When ASA clustering is enabled, shows the current assignment of a PAT address to the owner unit and backup unit.

Defaults

This command has no default settings.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.3(1)	This command was introduced.
8.4(3)	The output was modified to show the destination address for extended PAT. The PAT range was also modified depending on the use of the **flat** and **include-reserve** keywords.
9.0(1)	This command now supports IPv6 traffic. We added the **cluster** keyword to show the current assignment of a PAT address to the owner unit and backup unit.

Usage Guidelines

A NAT pool is created for each mapped protocol/IP address/port range, where the port ranges are 1-511, 512-1023, and 1024-65535 by default. If you use the **flat** keyword for a PAT pool in the **nat** command, you will see fewer, larger ranges.

Each NAT pool exists for at least 10 minutes after the last usage. The 10 minute hold-down timer is canceled if you clear the translations with **clear xlate**.

Examples

The following is sample output for the NAT pools created by a dynamic PAT rule shown by the **show running-config object network** command.

```
hostname(config)# show running-config object network
object network myhost
 host 10.10.10.10
 nat (pppoe2,inside) dynamic 10.76.11.25

hostname# show nat pool
```

```
TCP inside, address 10.76.11.25, range 1-511, allocated 0
TCP inside, address 10.76.11.25, range 512-1023, allocated 0
TCP inside, address 10.76.11.25, range 1024-65535, allocated 1
```

The following is sample output from the **show nat pool** command showing use of the PAT pool **flat** option. Without the **include-reserve** keyword, two ranges are shown; the lower range is used when a source port below 1024 is mapped to the same port.

```
hostname# show nat pool

ICMP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1-65535, allocated 2
TCP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1-1024, allocated 0
TCP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1024-65535, allocated 2
UDP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1-1024, allocated 0
UDP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1024-65535, allocated 2
```

The following is sample output from the **show nat pool** command showing use of the PAT pool **flat include-reserve** options.

```
hostname# show nat pool

ICMP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1-65535, allocated 2
TCP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1-65535, allocated 2
UDP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1-65535, allocated 2
```

The following is sample output from the **show nat pool** command showing use of the PAT pool **extended flat include-reserve** options. The important items are the parenthetical addresses. These are the destination addresses used to extend PAT.

```
ICMP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1-65535, allocated 0
ICMP PAT pool outside:dynamic-pat, address 172.16.2.200(172.16.2.99), range 1-65535,
allocated 2
TCP PAT pool outside:dynamic-pat, address 172.16.2.200(172.16.2.100), range 1-65535,
allocated 1
UDP PAT pool outside:dynamic-pat, address 172.16.2.200(172.16.2.100), range 1-65535,
allocated 1
TCP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1-65535, allocated 0
ICMP PAT pool outside:dynamic-pat, address 172.16.2.200(172.16.2.100), range 1-65535,
allocated 1
TCP PAT pool outside:dynamic-pat, address 172.16.2.200(172.16.2.99), range 1-65535,
allocated 2
UDP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1-65535, allocated 0
```

Related Commands

Command	Description
nat	Identifies addresses on one interface that are translated to mapped addresses on another interface.
show nat	Displays NAT policy statistics.

show ntp associations

To view NTP association information, use the **show ntp associations** command in user EXEC mode.

show ntp associations [**detail**]

Syntax Description

detail	(Optional) Shows additional details about each association.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
User EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

See the "Examples" section for a description of the display output.

Examples

The following is sample output from the **show ntp associations** command:

```
hostname> show ntp associations
     address         ref clock     st  when  poll  reach  delay  offset    disp
 ~172.31.32.2      172.31.32.1       5    29  1024  377     4.2   -8.59     1.6
+~192.168.13.33    192.168.1.111     3    69   128  377     4.1    3.48     2.3
*~192.168.13.57    192.168.1.111     3    32   128  377     7.9   11.18     3.6
* master (synced), # master (unsynced), + selected, - candidate, ~ configured
```

Table 52-2 shows each field description.

Table 52-2 show ntp associations Fields

Field	Description
(leading characters in display lines)	The first characters in a display line can be one or more of the following characters: • * —Synchronized to this peer. • # —Almost synchronized to this peer. • + —Peer selected for possible synchronization. • - —Peer is a candidate for selection. • ~ —Peer is statically configured, but not synchronized.
address	The address of the NTP peer.
ref clock	The address of the reference clock of the peer.
st	The stratum of the peer.
when	The time since the last NTP packet was received from the peer.
poll	The polling interval (in seconds).
reach	The peer reachability (as a bit string, in octal).
delay	The round-trip delay to the peer (in milliseconds).
offset	The relative time of the peer clock to the local clock (in milliseconds).
disp	The dispersion value.

The following is sample output from the **show ntp associations detail** command:

```
hostname> show ntp associations detail
172.23.56.249 configured, our_master, sane, valid, stratum 4
ref ID 172.23.56.225, time c0212639.2ecfc9e0 (20:19:05.182 UTC Fri Feb 22 2002)
our mode client, peer mode server, our poll intvl 128, peer poll intvl 128
root delay 38.04 msec, root disp 9.55, reach 177, sync dist 156.021
delay 4.47 msec, offset -0.2403 msec, dispersion 125.21
precision 2**19, version 3
org time c02128a9.731f127b (20:29:29.449 UTC Fri Feb 22 2002)
rcv time c02128a9.73c1954b (20:29:29.452 UTC Fri Feb 22 2002)
xmt time c02128a9.6b3f729e (20:29:29.418 UTC Fri Feb 22 2002)
filtdelay =     4.47    4.58    4.97    5.63    4.79    5.52    5.87   0.00
filtoffset =   -0.24   -0.36   -0.37    0.30   -0.17    0.57   -0.74   0.00
filterror =     0.02    0.99    1.71    2.69    3.66    4.64    5.62   16000.0
```

Table 52-3 shows each field description.

Table 52-3 show ntp associations detail Fields

Field	Description
IP-address configured	The server (peer) IP address.
(status)	• our_master—The ASA is synchronized to this peer. • selected—Peer is selected for possible synchronization. • candidate—Peer is a candidate for selection.

Table 52-3 show ntp associations detail Fields (continued)

Field	Description
(sanity)	• sane—The peer passes basic sanity checks. • insane—The peer fails basic sanity checks.
(validity)	• valid—The peer time is believed to be valid. • invalid—The peer time is believed to be invalid. • leap_add—The peer is signalling that a leap second will be added. • leap-sub—The peer is signalling that a leap second will be subtracted.
stratum	The stratum of the peer.
(reference peer)	unsynced—The peer is not synchronized to any other machine. ref ID—The address of the machine that the peer is synchronized to.
time	The last time stamp the peer received from its master.
our mode client	Our mode relative to the peer, which is always client.
peer mode server	The mode of the peer relative to the server.
our poll intvl	Our poll interval to the peer.
peer poll intvl	The peer poll interval to us.
root delay	The delay along the path to the root (ultimate stratum 1 time source).
root disp	The dispersion of the path to the root.
reach	The peer reachability (as a bit string in octal).
sync dist	The peer synchronization distance.
delay	The round-trip delay to the peer.
offset	The offset of the peer clock relative to our clock.
dispersion	The dispersion of the peer clock.
precision	The precision of the peer clock (in hertz).
version	The NTP version number that the peer is using.
org time	The originate time stamp.
rcv time	The receive time stamp.
xmt time	The transmit time stamp.
filtdelay	The round-trip delay (in milliseconds) of each sample.
filtoffset	The clock offset (in milliseconds) of each sample.
filterror	The approximate error of each sample.

Related Commands

Command	Description
ntp authenticate	Enables NTP authentication.
ntp authentication-key	Sets an encrypted authentication key to synchronize with an NTP server.
ntp server	Identifies an NTP server.

Command	Description
ntp trusted-key	Provides a key ID for the ASA to use in packets for authentication with an NTP server.
show ntp status	Shows the status of the NTP association.

show ntp status

To show the status of each NTP association, use the **show ntp status** command in user EXEC mode.

show ntp status

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
User EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

See the “Examples” section for a description of the display output.

Examples

The following is sample output from the **show ntp status** command:

```
hostname> show ntp status
Clock is synchronized, stratum 5, reference is 172.23.56.249
nominal freq is 99.9984 Hz, actual freq is 100.0266 Hz, precision is 2**6
reference time is c02128a9.73c1954b (20:29:29.452 UTC Fri Feb 22 2002)
clock offset is -0.2403 msec, root delay is 42.51 msec
root dispersion is 135.01 msec, peer dispersion is 125.21 msec
```

Table 52-4 shows each field description.

Table 52-4 show ntp status Fields

Field	Description
Clock	• synchronized—The ASA is synchronized to an NTP server. • unsynchronized—The ASA is not synchronized to an NTP server.
stratum	NTP stratum of this system.
reference	The address of the NTP server to which the ASA is synchronized.
nominal freq	The nominal frequency of the system hardware clock.

Table 52-4 show ntp status Fields

Field	Description
actual freq	The measured frequency of the system hardware clock.
precision	The precision of the clock of this system (in hertz).
reference time	The reference time stamp.
clock offset	The offset of the system clock to the synchronized peer.
root delay	The total delay along the path to the root clock.
root dispersion	The dispersion of the root path.
peer dispersion	The dispersion of the synchronized peer.

Related Commands

Command	Description
ntp authenticate	Enables NTP authentication.
ntp authentication-key	Sets an encrypted authentication key to synchronize with an NTP server.
ntp server	Identifies an NTP server.
ntp trusted-key	Provides a key ID for the ASA to use in packets for authentication with an NTP server.
show ntp associations	Shows the NTP servers with which the ASA is associated.

show object-group

To display object group information and the relevant hit count if the object group is of the network object-group type, use the **show object-group** command in privileged EXEC mode.

show object-group [protocol | service | icmp-type | id *object-group name*]

Syntax Description

icmp-type	(Optional) An ICMP-type object group.
id	(Optional) Identifies the existing object group.
object-group name	(Optional) Assigns a given name to the object group.
protocol	(Optional) Protocol-type object group.
service	(Optional) Service-type object.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.3(1)	This command was introduced.

Usage Guidelines

A routine attempt to show object groups also shows the object hit count if the object group is of the network object-group type. Hit counts do not display for service, protocol, and icmp-type object groups.

Examples

The following is sample output from the **show object-group** command and shows information about the network object group named “Anet”:

```
hostname# show object-group id Anet
Object-group network Anet (hitcnt=10)
   Description OBJ SEARCH ALG APPLIED
   network-object 1.1.1.0 255.255.255.0 (hitcnt=4)
   network-object 2.2.2.0 255.255.255.0 (hitcnt=6)
```

The following is sample output from the **show object-group** command and shows information about a service group:

```
hostname (config)# show object-group service
object-group service B-Serobj
   description its a service group
```

```
   service-object tcp eq bgp

   object-group protocol C-grp-proto
   protocol-object ospf
```

The following is sample output from the **show object-group** command and shows information about a protocol:

```
hostname (config)# show object-group protocol
object-group protocol C-grp-proto
   protocol-object ospf
```

Related Commands

Command	Description
clear object-group	Clears the network objects hit count for a given object group.
show access list	Shows all access lists, relevant expanded access list entries, and hit counts.

show ospf

To display the general information about the OSPF routing processes, use the **show ospf** command in privileged EXEC mode.

show ospf [*pid* [*area_id*]]

Syntax Description

area_id	(Optional) ID of the area that is associated with the OSPF address range.
pid	(Optional) The ID of the OSPF process.

Defaults

Lists all OSPF processes if no *pid* is specified.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

If the *pid* is included, only information for the specified routing process is included.

Examples

The following is sample output from the **show ospf** command, showing how to display general information about a specific OSPF routing process:

```
hostname# show ospf 5
 Routing Process "ospf 5" with ID 127.0.0.1 and Domain ID 0.0.0.5
 Supports only single TOS(TOS0) routes
 Supports opaque LSA
 SPF schedule delay 5 secs, Hold time between two SPFs 10 secs
 Minimum LSA interval 5 secs. Minimum LSA arrival 1 secs
 Number of external LSA 0. Checksum Sum 0x     0
 Number of opaque AS LSA 0. Checksum Sum 0x     0
 Number of DCbitless external and opaque AS LSA 0
 Number of DoNotAge external and opaque AS LSA 0
 Number of areas in this router is 0. 0 normal 0 stub 0 nssa
 External flood list length 0
```

The following is sample output from the **show ospf** command, showing how to display general information about all OSPF routing processes:

```
hostname# show ospf
 Routing Process "ospf 5" with ID 127.0.0.1 and Domain ID 0.0.0.5
 Supports only single TOS(TOS0) routes
 Supports opaque LSA
 SPF schedule delay 5 secs, Hold time between two SPFs 10 secs
 Minimum LSA interval 5 secs. Minimum LSA arrival 1 secs
 Number of external LSA 0. Checksum Sum 0x     0
 Number of opaque AS LSA 0. Checksum Sum 0x     0
 Number of DCbitless external and opaque AS LSA 0
 Number of DoNotAge external and opaque AS LSA 0
 Number of areas in this router is 0. 0 normal 0 stub 0 nssa
 External flood list length 0

 Routing Process "ospf 12" with ID 172.23.59.232 and Domain ID 0.0.0.12
 Supports only single TOS(TOS0) routes
 Supports opaque LSA
 SPF schedule delay 5 secs, Hold time between two SPFs 10 secs
 Minimum LSA interval 5 secs. Minimum LSA arrival 1 secs
 Number of external LSA 0. Checksum Sum 0x     0
 Number of opaque AS LSA 0. Checksum Sum 0x     0
 Number of DCbitless external and opaque AS LSA 0
 Number of DoNotAge external and opaque AS LSA 0
 Number of areas in this router is 0. 0 normal 0 stub 0 nssa
 External flood list length 0
```

Related Commands

Command	Description
router ospf	Enables OSPF routing and configures global OSPF routing parameters.

show ospf border-routers

To display the internal OSPF routing table entries to ABRs and ASBRs, use the **show ospf border-routers** command in privileged EXEC mode.

show ospf border-routers

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Examples

The following is sample output from the show **ospf border-routers** command:

```
hostname# show ospf border-routers

OSPF Process 109 internal Routing Table

Codes: i - Intra-area route, I - Inter-area route

i 192.168.97.53 [10] via 192.168.1.53, fifth, ABR, Area 0, SPF 20
i 192.168.103.51 [10] via 192.168.96.51, outside, ASBR, Area 192.168.12.0, SPF 14
i 192.168.103.52 [10] via 192.168.96.51, outside, ABR/ASBR, Area 192.168.12.0, SPF 14
```

Related Commands

Command	Description
router ospf	Enables OSPF routing and configures global OSPF routing parameters.

show ospf database

To display the information contained in the OSPF topological database on the ASA, use the **show ospf database** command in privileged EXEC mode.

show ospf [*pid* [*area_id*]] **database** [**router** | **network** | **summary** | **asbr-summary** | **external** | **nssa-external**] [*lsid*] [**internal**] [**self-originat**e | **adv-router** *addr*]

show ospf [*pid* [*area_id*]] **database database-summary**

Syntax Description

addr	(Optional) Router address.
adv-router	(Optional) Advertised router.
area_id	(Optional) ID of the area that is associated with the OSPF address range.
asbr-summary	(Optional) Displays an ASBR list summary.
database	Displays the database information.
database-summary	(Optional) Displays the complete database summary list.
external	(Optional) Displays routes external to a specified autonomous system.
internal	(Optional) Routes that are internal to a specified autonomous system.
lsid	(Optional) LSA ID.
network	(Optional) Displays the OSPF database information about the network.
nssa-external	(Optional) Displays the external not-so-stubby-area list.
pid	(Optional) ID of the OSPF process.
router	(Optional) Displays the router.
self-originate	(Optional) Displays the information for the specified autonomous system.
summary	(Optional) Displays a summary of the list.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

The OSPF routing-related **show** commands are available in privileged mode on the ASA. You do not need to be in an OSPF configuration mode to use the OSPF-related **show** commands.

Examples

The following is sample output from the **show ospf database** command:

```
hostname# show ospf database
OSPF Router with ID(192.168.1.11) (Process ID 1)

                Router Link States(Area 0)
Link ID   ADV Router   Age   Seq# Checksum Link count
192.168.1.8 192.168.1.8 1381 0x8000010D    0xEF60 2
192.168.1.11 192.168.1.11 1460 0x800002FE    0xEB3D 4
192.168.1.12 192.168.1.12 2027 0x80000090    0x875D 3
192.168.1.27 192.168.1.27 1323 0x800001D6    0x12CC 3

                Net Link States(Area 0)
Link ID ADV Router   Age   Seq# Checksum
172.16.1.27 192.168.1.27 1323 0x8000005B    0xA8EE
172.17.1.11 192.168.1.11 1461 0x8000005B    0x7AC

                Type-10 Opaque Link Area Link States (Area 0)
Link ID ADV Router   Age Seq# Checksum Opaque ID
10.0.0.0 192.168.1.11 1461 0x800002C8    0x8483   0
10.0.0.0 192.168.1.12 2027 0x80000080    0xF858   0
10.0.0.0 192.168.1.27 1323 0x800001BC    0x919B   0
10.0.0.1 192.168.1.11 1461 0x8000005E    0x5B43   1
```

The following is sample output from the **show ospf database asbr-summary** command:

```
hostname# show ospf database asbr-summary
OSPF Router with ID(192.168.239.66) (Process ID 300)
Summary ASB Link States(Area 0.0.0.0)
Routing Bit Set on this LSA
LS age: 1463
Options: (No TOS-capability)
LS Type: Summary Links(AS Boundary Router)
Link State ID: 172.16.245.1 (AS Boundary Router address)
Advertising Router: 172.16.241.5
LS Seq Number: 80000072
Checksum: 0x3548
Length: 28
Network Mask: 0.0.0.0
TOS: 0 Metric: 1
```

The following is sample output from the **show ospf database router** command:

```
hostname# show ospf database router
OSPF Router with id(192.168.239.66) (Process ID 300)
Router Link States(Area 0.0.0.0)
Routing Bit Set on this LSA
LS age: 1176
Options: (No TOS-capability)
LS Type: Router Links
Link State ID: 10.187.21.6
Advertising Router: 10.187.21.6
LS Seq Number: 80002CF6
Checksum: 0x73B7
Length: 120
AS Boundary Router
Number of Links: 8
Link connected to: another Router (point-to-point)
(link ID) Neighboring Router ID: 10.187.21.5
```

```
(Link Data) Router Interface address: 10.187.21.6
Number of TOS metrics: 0
TOS 0 Metrics: 2
```

The following is sample output from the **show ospf database network** command:

```
hostname# show ospf database network
OSPF Router with id(192.168.239.66) (Process ID 300)
Displaying Net Link States(Area 0.0.0.0)
LS age: 1367
Options: (No TOS-capability)
LS Type: Network Links
Link State ID: 10.187.1.3 (address of Designated Router)
Advertising Router: 192.168.239.66
LS Seq Number: 800000E7
Checksum: 0x1229
Length: 52
Network Mask: 255.255.255.0
Attached Router: 192.168.239.66
Attached Router: 10.187.241.5
Attached Router: 10.187.1.1
Attached Router: 10.187.54.5
Attached Router: 10.187.1.5
```

The following is sample output from the **show ospf database summary** command:

```
hostname# show ospf database summary
OSPF Router with id(192.168.239.66) (Process ID 300)
Displaying Summary Net Link States(Area 0.0.0.0)
LS age: 1401
Options: (No TOS-capability)
LS Type: Summary Links(Network)
Link State ID: 10.187.240.0 (summary Network Number)
Advertising Router: 10.187.241.5
LS Seq Number: 80000072
Checksum: 0x84FF
Length: 28
Network Mask: 255.255.255.0 TOS: 0 Metric: 1
```

The following is sample output from the **show ospf database external** command:

```
hostname# show ospf database external
OSPF Router with id(192.168.239.66) (Autonomous system 300)

                  Displaying AS External Link States
LS age: 280
Options: (No TOS-capability)
LS Type: AS External Link
Link State ID: 172.16.0.0 (External Network Number)
Advertising Router: 10.187.70.6
LS Seq Number: 80000AFD
Checksum: 0xC3A
Length: 36
Network Mask: 255.255.0.0

      Metric Type: 2 (Larger than any link state path)
TOS: 0
Metric: 1
Forward Address: 0.0.0.0
External Route Tag: 0
```

Related Commands

Command	Description
router ospf	Enables OSPF routing and configures global OSPF routing parameters.

show ospf flood-list

To display a list of OSPF LSAs waiting to be flooded over an interface, use the **show ospf flood-list** command in privileged EXEC mode.

show ospf flood-list *interface_name*

Syntax Description

interface_name	The name of the interface for which to display neighbor information.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

The OSPF routing-related **show** commands are available in privileged mode on the ASA. You do not need to be in an OSPF configuration mode to use the OSPF-related **show** commands.

Examples

The following is sample output from the **show ospf flood-list** command:

```
hostname# show ospf flood-list outside

  Interface outside, Queue length 20
  Link state flooding due in 12 msec

  Type  LS ID          ADV RTR          Seq NO       Age   Checksum
     5  10.2.195.0     192.168.0.163    0x80000009   0     0xFB61
     5  10.1.192.0     192.168.0.163    0x80000009   0     0x2938
     5  10.2.194.0     192.168.0.163    0x80000009   0     0x757
     5  10.1.193.0     192.168.0.163    0x80000009   0     0x1E42
     5  10.2.193.0     192.168.0.163    0x80000009   0     0x124D
     5  10.1.194.0     192.168.0.163    0x80000009   0     0x134C
```

Related Commands

Command	Description
router ospf	Enables OSPF routing and configures global OSPF routing parameters.

show ospf interface

To display the OSPF-related interface information, use the **show ospf interface** command in privileged EXEC mode.

show ospf interface [*interface_name*]

Syntax Description

interface_name	(Optional) Name of the interface for which to display the OSPF-related information.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

When used without the *interface_name* argument, the OSPF information for all interfaces is shown.

Examples

The following is sample output from the **show ospf interface** command:

```
hostname# show ospf interface outside
out is up, line protocol is up
  Internet Address 10.0.3.4 mask 255.255.255.0, Area 0
  Process ID 2, Router ID 10.0.3.4, Network Type BROADCAST, Cost: 10
  Transmit Delay is 1 sec, State WAITING, Priority 1
  No designated router on this network
  No backup designated router on this network
  Timer intervals configured, Hello 10 msec, Dead 1, Wait 1, Retransmit 5
    Hello due in 5 msec
    Wait time before Designated router selection 0:00:11
  Index 1/1, flood queue length 0
  Next 0x00000000(0)/0x00000000(0)
  Last flood scan length is 0, maximum is 0
  Last flood scan time is 0 msec, maximum is 0 msec
  Neighbor Count is 0, Adjacent neighbor count is 0
  Suppress hello for 0 neighbor(s)
```

Related Commands

Command	Description
interface	Enters interface configuration mode.

show ospf neighbor

To display the OSPF-neighbor information on a per-interface basis, use the **show ospf neighbor** command in privileged EXEC mode.

show ospf neighbor [**detail** | *interface_name* [*nbr_router_id*]]

Syntax Description

detail	(Optional) Lists detail information for the specified router.
interface_name	(Optional) Name of the interface for which to display neighbor information.
nbr_router_id	(Optional) Router ID of the neighbor router.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Examples

The following is sample output from the **show ospf neighbor** command. It shows how to display the OSPF-neighbor information on a per-interface basis.

```
hostname# show ospf neighbor outside

Neighbor 192.168.5.2, interface address 10.225.200.28
    In the area 0 via interface outside
    Neighbor priority is 1, State is FULL, 6 state changes
    DR is 10.225.200.28 BDR is 10.225.200.30
    Options is 0x42
    Dead timer due in 00:00:36
    Neighbor is up for 00:09:46
  Index 1/1, retransmission queue length 0, number of retransmission 1
    First 0x0(0)/0x0(0) Next 0x0(0)/0x0(0)
    Last retransmission scan length is 1, maximum is 1
    Last retransmission scan time is 0 msec, maximum is 0 msec
```

Related Commands

Command	Description
neighbor	Configures OSPF routers interconnecting to non-broadcast networks.
router ospf	Enables OSPF routing and configures global OSPF routing parameters.

show ospf request-list

To display a list of all LSAs that are requested by a router, use the **show ospf request-list** command in privileged EXEC mode.

show ospf request-list *nbr_router_id interface_name*

Syntax Description

interface_name	Name of the interface for which to display neighbor information. Displays the list of all LSAs that are requested by the router from this interface.
nbr_router_id	Router ID of the neighbor router. Displays the list of all LSAs that are requested by the router from this neighbor.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Examples

The following is sample output from the **show ospf request-list** command:

```
hostname# show ospf request-list 192.168.1.12 inside

          OSPF Router with ID (192.168.1.11) (Process ID 1)

  Neighbor 192.168.1.12, interface inside address 172.16.1.12

  Type   LS ID          ADV RTR        Seq NO       Age   Checksum
     1   192.168.1.12   192.168.1.12   0x8000020D   8     0x6572
```

Related Commands

Command	Description
show ospf retransmission-list	Displays a list of all LSAs waiting to be resent.

show ospf retransmission-list

To display a list of all LSAs waiting to be resent, use the **show ospf retransmission-list** command in privileged EXEC mode.

show ospf retransmission-list *nbr_router_id interface_name*

Syntax Description

interface_name	Name of the interface for which to display neighbor information.
nbr_router_id	Router ID of the neighbor router.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

The OSPF routing-related **show** commands are available in privileged mode on the ASA. You do not need to be in an OSPF configuration mode to use the OSPF-related **show** commands.

The *nbr_router_id* argument displays the list of all LSAs that are waiting to be resent for this neighbor.

The *interface_name* argument displays the list of all LSAs that are waiting to be resent for this interface.

Examples

The following is sample output from the **show ospf retransmission-list** command, where the *nbr_router_id* argument is 192.168.1.11 and the *if_name* argument is outside:

```
hostname# show ospf retransmission-list 192.168.1.11 outside

          OSPF Router with ID (192.168.1.12) (Process ID 1)

  Neighbor 192.168.1.11, interface outside address 172.16.1.11
  Link state retransmission due in 3764 msec, Queue length 2


  Type   LS ID          ADV RTR        Seq NO       Age   Checksum
     1   192.168.1.12   192.168.1.12   0x80000210   0     0xB196
```

Related Commands

Command	Description
show ospf request-list	Displays a list of all LSAs that are requested by a router.

show ospf summary-address

To display a list of all summary address redistribution information that is configured under an OSPF process, use the **show ospf summary-address** command in privileged EXEC mode.

show ospf summary-address

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Examples

The following shows sample output from the **show ospf summary-address** command. It shows how to display a list of all summary address redistribution information before a summary address has been configured for an OSPF process with the ID of 5.

```
hostname# show ospf 5 summary-address

OSPF Process 2, Summary-address

10.2.0.0/255.255.0.0 Metric -1, Type 0, Tag 0
10.2.0.0/255.255.0.0 Metric -1, Type 0, Tag 10
```

Related Commands

Command	Description
summary-address	Creates aggregate addresses for OSPF.

show ospf traffic

To display a list of different types of packets that have been processed (sent or received) by a particular OSPF instance, use the **show ospf traffic** command in privileged EXEC mode. With this command, you can get a snapshot of the different types of OSPF packets that are being being processed without enabling debugging. If there are two OSPF instances configured, the show ospf traffic command displays the statistics for both instances with the process ID of each instance. You can also display the statistics for a single instance by using the **show ospf** *process_id* **traffic** command.

show ospf traffic

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

With this command, you can get a snapshot of the different types of OSPF packets that are being being processed without enabling debugging. If there are two OSPF instances configured, the **show ospf traffic** command displays the statistics for both instances with the process ID of each instance. You can also display the statistics for a single instance by using the **show ospf** *process_id* **traffic** command.

Examples

The following shows sample output from the **show ospf traffic** command.

```
hostname# show ospf traffic

OSPF statistics (Process ID 70):

       Rcvd: 244 total, 0 checksum errors
             234 hello, 4 database desc, 1 link state req
             3 link state updates, 2 link state acks
       Sent: 485 total
             472 hello, 7 database desc, 1 link state req
             3 link state updates, 2 link state acks
```

Related Commands

Command	Description
show ospf virtual-links	Displays the parameters and the current state of OSPF virtual links.

show ospf virtual-links

To display the parameters and the current state of OSPF virtual links, use the **show ospf virtual-links** command in privileged EXEC mode.

show ospf virtual-links

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Examples

The following is sample output from the **show ospf virtual-links** command:

```
hostname# show ospf virtual-links

Virtual Link to router 192.168.101.2 is up
Transit area 0.0.0.1, via interface Ethernet0, Cost of using 10
Transmit Delay is 1 sec, State POINT_TO_POINT
Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
Hello due in 0:00:08
Adjacency State FULL
```

Related Commands

Command	Description
area virtual-link	Defines an OSPF virtual link.

CHAPTER 53

show pager through show route Commands

show pager

To display a default or static route for an interface, use the **show pager** command in privileged EXEC mode.

show pager

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
4.0(1)	This command was introduced.

Examples

The following is sample output from the **show pager** command:

```
hostname(config)# show pager
pager lines 0
```

Related Commands

Command	Description
clear configure pager	Removes the number of lines set to display in a Telnet session before the "---More---" prompt appears from the running configuration.
terinal pager	Sets the number of lines to display in a Telnet session before the "---More---" prompt appears. This command is not saved to the running configuration.
show running-config pager	Displays the number of lines set to display in a Telnet session before the "---More---" prompt appears in the running configuration.

show password encryption

To show the password encryption configuration settings, use the **show password encryption** command in privileged EXEC mode.

show password encryption

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
8.3(1)	This command was introduced.
8.4(1)	Allows you to show password encryption in user context.

Usage Guidelines

If the key has been saved using the **write memory** command, "saved" appears next to the key hash. If there is no key or it has been removed from the running configuration, "Not set" appears instead of the hash value.

Examples

The following is sample output from the **show password encryption** command:

```
hostname# show password encryption
Password Encryption: Enabled
Master key hash: 0x35859e5e 0xc607399b 0x35a3438f 0x55474935 0xbec1ee7d(not saved)
```

Related Commands

Command	Description
password encryption aes	Enables password encryption.
key config-key password-encrypt	Sets the pass phrase used for generating the encryption key.

show perfmon

To display information about the performance of the ASA, use the **show perfmon** command in privileged EXEC mode.

show perfmon [**detail**]

Syntax Description

detail	(Optional) Shows additional statsistics. These statistics match those gathered by the Global and Per-protocol connection objects of the Cisco Unified Firewall MIB.

Defaults

This command has no default settings.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	Support for this command was introduced on the ASA.
7.2(1)	The **detail** keyword was added.

Usage Guidelines

This command output does not display in a Telnet session.

The **perfmon** command shows performance statistics continuously at defined intervals. The **show perfmon** command allows you to display the information immediately.

Examples

The following is sample output for the **show perfmon** command:

```
hostname(config)# show perfmon
Context: my_context
PERFMON STATS:    Current      Average
Xlates               0/s          0/s
Connections          0/s          0/s
TCP Conns            0/s          0/s
UDP Conns            0/s          0/s
URL Access           0/s          0/s
URL Server Req       0/s          0/s
WebSns Req           0/s          0/s
TCP Fixup            0/s          0/s
TCP Intercept        0/s          0/s
HTTP Fixup           0/s          0/s
FTP Fixup            0/s          0/s
```

```
AAA Authen           0/s          0/s
AAA Author           0/s          0/s
AAA Account          0/s          0/s
```

The following is sample output for the **show perfmon detail** command:

```
hostname(config)# show perfmon detail
PERFMON STATS:    Current      Average
Xlates               0/s          0/s
Connections          0/s          0/s
TCP Conns            0/s          0/s
UDP Conns            0/s          0/s
URL Access           0/s          0/s
URL Server Req       0/s          0/s
TCP Fixup            0/s          0/s
HTTP Fixup           0/s          0/s
FTP Fixup            0/s          0/s
AAA Authen           0/s          0/s
AAA Author           0/s          0/s
AAA Account          0/s          0/s
TCP Intercept        0/s          0/s

SETUP RATES:
Connections for 1 minute = 0/s; 5 minutes = 0/s
TCP Conns for 1 minute = 0/s; 5 minutes = 0/s
UDP Conns for 1 minute = 0/s; 5 minutes = 0/s
```

Related Commands

Command	Description
perfmon	Displays detailed performance monitoring information at defined intervals.

show phone-proxy

To show phone-proxy specific information, use the **show phone-proxy** command in global configuration mode.

show phone-proxy [media-sessions [detail] | signaling-sessions [detai] | secure-phones]

Syntax Description

detail	Displays detailed information.
media-sessions	Displays the corresponding media sessions stored by the Phone Proxy. In addition, displays the media-termination address configured for the interface between which the media sessions are established.
secure-phones	Displays the phones capable of secure mode stored in the database.
signaling-sessions	Displays the corresponding signaling sessions stored by the Phone Proxy.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
8.0(4)	The command was introduced.
8.2(1)	The command was updated so that specifying the **media-sessions** keyword also displays the media-termination address configured for the interface between which the media sessions are established.

Examples

The following example shows the use of the **show phone proxy** command to show Phone Proxy specific information:

```
hostname(config)# show phone-proxy
Phone-Proxy 'mypp': Runtime Proxy ref_cnt 2
Cluster Mode: nonsecure
Run-time proxies:
Proxy 0xd55f6fd8: Class-map: secsip, Inspect: sip
Proxy 0xd58a93a8: Class-map: secsccp, Inspect: skinny
phoneproxy(config)# show phone-proxy secure-phones
mypp: 5 in use, 5 most used
Interface  IP Address     Port  MAC            Timeout Idle
outside    69.181.112.219 10889 001e.7ac4.da9c 0:05:00 0:01:36
outside    98.208.25.87   14159 001c.581c.0663 0:05:00 0:00:04
outside    98.208.25.87   14158 0007.0e36.4804 0:05:00 0:00:13
outside    98.208.25.87   14157 001e.7ac4.deb8 0:05:00 0:00:21
```

```
outside    128.107.254.69 49875 001b.0cad.1f69 0:05:00 0:00:04
hostname(config)#
```

The following example shows the use of the **show phone proxy** command to display the phones capable of secure mode stored in the database:

```
hostname(config)# show phone-proxy secure-phones
asa_phone_proxy: 3 in use, 4 most used

Interface/IP Address      MAC               Timeout    Idle
------------------------  ----------        ---------  ------
outside:69.181.112.219    001e.7ac4.da9c    0:05:00    0:00:16
outside:69.181.112.219    0002.b9eb.0aad    0:05:00    0:00:58
outside:98.208.49.30      0007.0e36.4804    0:05:00    0:00:09
hostname(config)#
```

The following example shows the use of the **show phone proxy** command to show output from a successful call and the media-termination address configured for the interface between which the media sessions are established:

```
hostname(config)# show phone-proxy media-sessions
Media-session: 128.106.254.3/1168 refcnt 6
  <---> RTP connection to 192.168.200.106/25038 tx_pkts 485 rx_pkts 491
Media-session: 128.106.254.3/1170 refcnt 6
  <---> SRTP connection to 98.208.25.87/1030 tx_pkts 484 rx_pkts 485
```

Related Commands

Command	Description
debug phone-proxy	Displays debug messages for the Phone Proxy instance.
phone proxy	Configures the Phone Proxy instance.

show pim df

To display the bidirectional DF "winner" for a rendezvous point (RP) or interface, use the **show pim df** command in user EXEC or privileged EXEC mode.

show pim df [**winner**] [*rp_address* | *if_name*]

Syntax Description

rp_address	Can be either one of the following: • Name of the RP, as defined in the Domain Name System (DNS) hosts table or with the domain **ipv4 host** command. • IP address of the RP. This is a multicast IP address in four-part dotted-decimal notation.
if_name	The physical or logical interface name.
winner	(Optional) Displays the DF election winner per interface per RP.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
User EXEC or Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command also displays the winner metric towards the RP.

Examples

The following is sample output from the **show pim df** command:

```
hostname# show pim df
RP           Interface   DF Winner   Metrics

172.16.1.3   Loopback3   172.17.3.2  [110/2]
172.16.1.3   Loopback2   172.17.2.2  [110/2]
172.16.1.3   Loopback1   172.17.1.2  [110/2]
172.16.1.3   inside      10.10.2.3   [0/0]
172.16.1.3   inside      10.10.1.2   [110/2]
```

show pim group-map

To display group-to-protocol mapping table, use the **show pim group-map** command in user EXEC or privileged EXEC mode.

show pim group-map [**info-source**] [*group*]

Syntax Description

group	(Optional) Can be either one of the following: • Name of the multicast group, as defined in the DNS hosts table or with the domain **ipv4 host** command. • IP address of the multicast group. This is a multicast IP address in four-part dotted-decimal notation.
info-source	(Optional) Displays the group range information source.

Defaults

Displays group-to-protocol mappings for all groups.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
User EXEC or Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command displays all group protocol address mappings for the RP. Mappings are learned on the ASA from different clients.

The PIM implementation on the ASA has various special entries in the mapping table. Auto-rp group ranges are specifically denied from sparse-mode group range. SSM group range also does not fall under sparse-mode. Link Local multicast groups (224.0.0.0–224.0.0.225, as defined by 224.0.0.0/24) are also denied from the sparse-mode group range. The last entry shows all remaining groups in Sparse-Mode with a given RP.

If multiple RPs are configured with the **pim rp-address** command, then the appropriate group range is displayed with their corresponding RPs.

Examples

The following is sample output form the **show pim group-map** command:

```
hostname# show pim group-map
Group Range      Proto   Client Groups   RP address   Info
```

```
224.0.1.39/32*   DM      static 1        0.0.0.0
224.0.1.40/32*   DM      static 1        0.0.0.0
224.0.0.0/24*    NO      static 0        0.0.0.0
232.0.0.0/8*     SSM     config 0        0.0.0.0
224.0.0.0/4*     SM      autorp 1        10.10.2.2    RPF: POS01/0/3,10.10.3.2
```

In lines 1 and 2, Auto-RP group ranges are specifically denied from the sparse mode group range.

In line 3, link-local multicast groups (224.0.0.0 to 224.0.0.255 as defined by 224.0.0.0/24) are also denied from the sparse mode group range.

In line 4, the PIM Source Specific Multicast (PIM-SSM) group range is mapped to 232.0.0.0/8.

The last entry shows that all the remaining groups are in sparse mode mapped to RP 10.10.3.2.

Related Commands

Command	Description
multicast-routing	Enables multicast routing on the ASA.
pim rp-address	Configures the address of a PIM rendezvous point (RP).

show pim interface

To display interface-specific information for PIM, use the **show pim interface** command in user EXEC or privileged EXEC mode.

show pim interface [*if_name* | **state-off** | **state-on**]

Syntax Description

if_name	(Optional) The name of an interface. Including this argument limits the displayed information to the specified interface.
state-off	(Optional) Displays interfaces with PIM disabled.
state-on	(Optional) Displays interfaces with PIM enabled.

Defaults

If you do not specify an interface, PIM information for all interfaces is shown.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
User EXEC or privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The PIM implementation on the ASA considers the ASA itself a PIM neighbor. Therefore, the neighbor count column in the output of this command shows one more than the actual number of neighbors.

Examples

The following example displays PIM information for the inside interface:

```
hostname# show pim interface inside
Address     Interface      Ver/     Nbr     Query      DR     DR
                           Mode     Count   Intvl      Prior
172.16.1.4 inside          v2/S     2       100 ms     1      172.16.1.4
```

Related Commands

Command	Description
multicast-routing	Enables multicast routing on the ASA.

show pim join-prune statistic

To display PIM join/prune aggregation statistics, use the **show pim join-prune statistics** command in user EXEC or privileged EXEC mode.

show pim join-prune statistics [*if_name*]

Syntax Description

if_name	(Optional) The name of an interface. Including this argument limits the displayed information to the specified interface.

Defaults

If an interface is not specified, this command shows the join/prune statistics for all interfaces.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
User EXEC or Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Clear the PIM join/prune statistics with the **clear pim counters** command.

Examples

The following is sample output from the **show pim join-prune statistic** command:

```
hostname# show pim join-prune statistic

PIM Average Join/Prune Aggregation for last (1K/10K/50K) packets
Interface          Transmitted             Received

            inside   0 /    0 /    0         0 /    0 /    0
  GigabitEthernet1   0 /    0 /    0         0 /    0 /    0
         Ethernet0   0 /    0 /    0         0 /    0 /    0
         Ethernet3   0 /    0 /    0         0 /    0 /    0
  GigabitEthernet0   0 /    0 /    0         0 /    0 /    0
         Ethernet2   0 /    0 /    0         0 /    0 /    0
```

Related Commands

Command	Description
clear pim counters	Clears the PIM traffic counters.

show pim neighbor

To display entries in the PIM neighbor table, use the **show pim neighbor** command in user EXEC or privileged EXEc mode.

show pim neighbor [**count** | **detail**] [*interface*]

Syntax Description

interface	(Optional) The name of an interface. Including this argument limits the displayed information to the specified interface.
count	(Optional) Displays the total number of PIM neighbors and the number of PIM neighbors on each interface.
detail	(Optional) Displays additional address of the neighbor learned through the upstream-detection hello option.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
User EXEC or Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command is used to determine the PIM neighbors known to this router through PIM hello messages. Also, this command indicates that an interface is a designated router (DR) and when the neighbor is capable of bidirectional operation.

The PIM implementation on the ASA considers the ASA itself to be a PIM neighbor. Therefore, the ASA interface is shown in the output of this command. The IP address of the ASA is indicated by an asterisk next to the address.

Examples

The following is sample output from the **show pim neighbor** command:

```
hostname# show pim neighbor inside
Neighbor Address    Interface    Uptime     Expires   DR  pri  Bidir
10.10.1.1           inside       03:40:36   00:01:41  1        B
10.10.1.2*          inside       03:41:28   00:01:32  1   (DR) B
```

Related Commands

Command	Description
multicast-routing	Enables multicast routing on the ASA.

show pim range-list

To display range-list information for PIM, use the **show pim range-list** command in user EXEC or privileged EXEC mode.

show pim range-list [*rp_address*]

Syntax Description

rp_address	Can be either one of the following: • Name of the RP, as defined in the Domain Name System (DNS) hosts table or with the domain **ipv4 host** command. • IP address of the RP. This is a multicast IP address in four-part dotted-decimal notation.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
User EXEC or Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command is used to determine the multicast forwarding mode to group mapping. The output also indicates the rendezvous point (RP) address for the range, if applicable.

Examples

The following is sample output from the **show pim range-list** command:

```
hostname# show pim range-list
config SSM Exp: never Src: 0.0.0.0
  230.0.0.0/8 Up: 03:47:09
config BD RP: 172.16.1.3 Exp: never Src: 0.0.0.0
  239.0.0.0/8 Up: 03:47:16
config BD RP: 172.18.1.6 Exp: never Src: 0.0.0.0
  239.100.0.0/16 Up: 03:47:10
config SM RP: 172.18.2.6 Exp: never Src: 0.0.0.0
  235.0.0.0/8 Up: 03:47:09
```

Related Commands

Command	Description
show pim group-map	Displays group-to-PIM mode mapping and active RP information.

show pim topology

To display PIM topology table information, use the **show pim topology** command in user EXEC or privileged EXEC mode.

show pim topology [*group*] [*source*]

Syntax Description

group	(Optional) Can be one of the following: • Name of the multicast group, as defined in the DNS hosts table or with the domain **ipv4 host** command. • IP address of the multicast group. This is a multicast IP address in four-part dotted-decimal notation.
source	(Optional) Can be one of the following: • Name of the multicast source, as defined in the DNS hosts table or with the domain **ipv4 host** command. • IP address of the multicast source. This is a multicast IP address in four-part dotted-decimal notation.

Defaults

Topology information for all groups and sources is shown.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
User EXEC or Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Use the PIM topology table to display various entries for a given group, (*, G), (S, G), and (S, G)RPT, each with its own interface list.

PIM communicates the contents of these entries through the MRIB, which is an intermediary for communication between multicast routing protocols, such as PIM, local membership protocols, such as Internet Group Management Protocol (IGMP), and the multicast forwarding engine of the system.

The MRIB shows on which interface the data packet should be accepted and on which interfaces the data packet should be forwarded, for a given (S, G) entry. Additionally, the Multicast Forwarding Information Base (MFIB) table is used during forwarding to decide on per-packet forwarding actions.

Note For forwarding information, use the **show mfib route** command.

Examples

The following is sample output from the **show pim topology** command:

```
hostname# show pim topology

IP PIM Multicast Topology Table
Entry state: (*/S,G)[RPT/SPT] Protocol Uptime Info
Entry flags: KAT - Keep Alive Timer, AA - Assume Alive, PA - Probe Alive,
    RA - Really Alive, LH - Last Hop, DSS - Don't Signal Sources,
    RR - Register Received, SR
(*,224.0.1.40) DM Up: 15:57:24 RP: 0.0.0.0
JP: Null(never) RPF: ,0.0.0.0 Flags: LH DSS
  outside            15:57:24  off LI LH

(*,224.0.1.24) SM Up: 15:57:20 RP: 0.0.0.0
JP: Join(00:00:32) RPF: ,0.0.0.0 Flags: LH
  outside            15:57:20  fwd LI LH

(*,224.0.1.60) SM Up: 15:57:16 RP: 0.0.0.0
JP: Join(00:00:32) RPF: ,0.0.0.0 Flags: LH
  outside            15:57:16  fwd LI LH
```

Related Commands

Command	Description
show mrib route	Displays the MRIB table.
show pim topology reserved	Displays PIM topology table information for reserved groups.

show pim topology reserved

To display PIM topology table information for reserved groups, use the **show pim topology reserved** command in user EXEC or privileged EXEC mode.

show pim topology reserved

Syntax Description

This command has no arguments or keywords.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
User EXEC or privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show pim topology reserved** command:

```
hostname# show pim topology reserved

IP PIM Multicast Topology Table
Entry state: (*/S,G)[RPT/SPT] Protocol Uptime Info
Entry flags: KAT - Keep Alive Timer, AA - Assume Alive, PA - Probe Alive,
    RA - Really Alive, LH - Last Hop, DSS - Don't Signal Sources,
    RR - Register Received, SR - Sending Registers, E - MSDP External,
    DCC - Don't Check Connected
Interface state: Name, Uptime, Fwd, Info
Interface flags: LI - Local Interest, LD - Local Disinterest,
    II - Internal Interest, ID - Internal Disinterest,
    LH - Last Hop, AS - Assert, AB - Admin Boundary

(*,224.0.0.1) L-Local Up: 00:02:26 RP: 0.0.0.0
JP: Null(never) RPF: ,0.0.0.0 Flags:
  outside            00:02:26  off II

(*,224.0.0.3) L-Local Up: 00:00:48 RP: 0.0.0.0
JP: Null(never) RPF: ,0.0.0.0 Flags:
  inside             00:00:48  off II
```

Related Commands

Command	Description
show pim topology	Displays the PIM topology table.

show pim topology route-count

To display PIM topology table entry counts, use the **show pim topology route-count** command in user EXEC or privileged EXEC mode.

show pim topology route-count [**detail**]

Syntax Description

detail	(Optional) Displays more detailed count information on a per-group basis.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
User EXEC or Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command displays the count of entries in the PIM topology table. To display more information about the entries, use the **show pim topology** command.

Examples

The following is sample output from the **show pim topology route-count** command:

```
hostname# show pim topology route-count

PIM Topology Table Summary
  No. of group ranges = 5
  No. of (*,G) routes = 0
  No. of (S,G) routes = 0
  No. of (S,G)RPT routes = 0
```

Related Commands

Command	Description
show pim topology	Displays the PIM topology table.

show pim traffic

To display PIM traffic counters, use the **show pim traffic** command in user EXEC or privileged EXEC mode.

show pim traffic

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
User EXEC or Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Clear the PIM traffic counters with the **clear pim counters** command.

Examples

The following is sample output from the **show pim traffic** command:

```
hostname# show pim traffic

PIM Traffic Counters
Elapsed time since counters cleared: 3d06h

                                Received     Sent
Valid PIM Packets                      0        9485
Hello                                  0        9485
Join-Prune                             0           0
Register                               0           0
Register Stop                          0           0
Assert                                 0           0
Bidir DF Election                      0           0

Errors:
Malformed Packets                                  0
Bad Checksums                                      0
Send Errors                                        0
Packet Sent on Loopback Errors                     0
Packets Received on PIM-disabled Interface         0
Packets Received with Unknown PIM Version          0
```

Related Commands

Command	Description
clear pim counters	Clears the PIM traffic counters.

show pim tunnel

To display information about the PIM tunnel interfaces, use the **show pim tunnel** command in user EXEC or privileged EXEC mode.

show pim tunnel [*if_name*]

Syntax Description

if_name	(Optional) The name of an interface. Including this argument limits the displayed information to the specified interface.

Defaults

If an interface is not specified, this command shows the PIM tunnel information for all interfaces.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
User EXEC or Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

PIM register packets are sent through the virtual encapsulation tunnel interface from the source first hop DR router to the RP. On the RP, a virtual decapsulation tunnel is used to represent the receiving interface of the PIM register packets. This command displays tunnel information for both types of interfaces.

Register tunnels are the encapsulated (in PIM register messages) multicast packets from a source that is sent to the RP for distribution through the shared tree. Registering applies only to SM, not SSM and bidirectional PIM.

Examples

The following is sample output from the **show pim tunnel** command:

```
hostname# show pim tunnel

Interface     RP Address Source Address

Encapstunnel0 10.1.1.1   10.1.1.1
Decapstunnel0 10.1.1.1   -
```

Related Commands

Command	Description
show pim topology	Displays the PIM topology table.

show port-channel

To display EtherChannel information in a detailed and one-line summary form or to display the port and port-channel information, use the **show port-channel** command in privileged EXEC mode.

show port-channel [*channel_group_number*] [**brief** | **detail** | **port** | **protocol** | **summary**]

Syntax Description

brief	(Default) Shows a brief display.
channel_group_number	(Optional) Specifies the EtherChannel channel group number, between 1 and 48, and only shows information about this channel group.
detail	(Optional) Shows a detailed display.
port	(Optional) Shows information for each interface.
protocol	(Optional) Shows the EtherChannel protocol, such as LACP if enabled.
summary	(Optional) Shows a summary of port-channels.

Command Default

The default is **brief**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
8.4(1)	We introduced this command.

Examples

The following is sample output from the **show port-channel** command:

```
hostname# show port-channel
        Channel-group listing:
        ----------------------

Group: 1
----------
Ports: 3   Maxports = 16
Port-channels: 1 Max Port-channels = 48
Protocol: LACP/ active
Minimum Links: 1
Maximum Bundle: 8
Load balance: src-dst-ip
```

The following is sample output from the **show port-channel summary** command:

```
hostname# show port-channel summary
```

```
Number of channel-groups in use: 1
Group  Port-channel  Protocol    Ports
------+-------------+-----------+-----------------------------------------------
1      Po1             LACP    Gi3/1   Gi3/2   Gi3/3
```

The following is sample output from the **show port-channel detail** command:

```
hostname# show port-channel detail
       Channel-group listing:
       ----------------------

Group: 1
----------
Ports: 3   Maxports = 16
Port-channels: 1 Max Port-channels = 48
Protocol: LACP/ active
Minimum Links: 1
Maximum Bundle: 8
Load balance: src-dst-ip
       Ports in the group:
       -------------------
Port: Gi3/1
------------
Port state    = bndl
Channel group =    1        Mode = LACP/ active
Port-channel  = Po1

Flags:  S - Device is sending Slow LACPDUs   F - Device is sending fast LACPDUs.
        A - Device is in active mode.        P - Device is in passive mode.

Local information:
                           LACP port     Admin     Oper    Port        Port
Port      Flags   State      Priority      Key       Key     Number      State
--------------------------------------------------------------------------------
Gi3/1     SA      bndl       32768         0x1       0x1     0x302       0x3d

Partner's information:
          Partner Partner    LACP Partner  Partner   Partner  Partner     Partner
Port      Flags   State      Port Priority Admin Key Oper Key Port Number Port State
--------------------------------------------------------------------------------
Gi3/1     SA      bndl       32768         0x0       0x1      0x306       0x3d


Port: Gi3/2
------------
Port state    = bndl
Channel group =    1        Mode = LACP/ active
Port-channel  = Po1

Flags:  S - Device is sending Slow LACPDUs   F - Device is sending fast LACPDUs.
        A - Device is in active mode.        P - Device is in passive mode.

Local information:
                           LACP port     Admin     Oper    Port        Port
Port      Flags   State      Priority      Key       Key     Number      State
--------------------------------------------------------------------------------
Gi3/2     SA      bndl       32768         0x1       0x1     0x303       0x3d

Partner's information:
          Partner Partner    LACP Partner  Partner   Partner  Partner     Partner
Port      Flags   State      Port Priority Admin Key Oper Key Port Number Port State
--------------------------------------------------------------------------------
```

```
Gi3/2     SA      bndl       32768         0x0       0x1      0x303       0x3d


Port: Gi3/3
------------
Port state    = bndl
Channel group =    1        Mode = LACP/ active
Port-channel  = Po1

Flags:  S - Device is sending Slow LACPDUs   F - Device is sending fast LACPDUs.
        A - Device is in active mode.        P - Device is in passive mode.

Local information:
                            LACP port     Admin     Oper    Port        Port
Port      Flags   State     Priority      Key       Key     Number      State
-------------------------------------------------------------------------------
Gi3/3     SA      bndl       32768         0x1       0x1     0x304       0x3d

Partner's information:
          Partner Partner    LACP Partner  Partner   Partner  Partner     Partner
Port      Flags   State      Port Priority Admin Key Oper Key Port Number Port State
-------------------------------------------------------------------------------
Gi3/3     SA      bndl       32768         0x0       0x1      0x302       0x3d
```

The following is sample output from the **show port-channel port** command:

```
hostname# show port-channel port
        Channel-group listing:
        ----------------------

Group: 1
----------
        Ports in the group:
        -------------------
Port: Gi3/1
------------
Port state    = bndl
Channel group =    1        Mode = LACP/ active
Port-channel  = Po1

Flags:  S - Device is sending Slow LACPDUs   F - Device is sending fast LACPDUs.
        A - Device is in active mode.        P - Device is in passive mode.

Local information:
                            LACP port     Admin     Oper    Port        Port
Port      Flags   State     Priority      Key       Key     Number      State
-------------------------------------------------------------------------------
Gi3/1     SA      bndl       32768         0x1       0x1     0x302       0x3d

Partner's information:
          Partner Partner    LACP Partner  Partner   Partner  Partner     Partner
Port      Flags   State      Port Priority Admin Key Oper Key Port Number Port State
-------------------------------------------------------------------------------
Gi3/1     SA      bndl       32768         0x0       0x1      0x306       0x3d


Port: Gi3/2
------------
Port state    = bndl
Channel group =    1        Mode = LACP/ active
Port-channel  = Po1

Flags:  S - Device is sending Slow LACPDUs   F - Device is sending fast LACPDUs.
        A - Device is in active mode.        P - Device is in passive mode.
```

```
Local information:
                            LACP port     Admin     Oper    Port        Port
Port      Flags   State     Priority      Key       Key     Number      State
--------------------------------------------------------------------------------
Gi3/2     SA      bndl      32768         0x1       0x1     0x303       0x3d

Partner's information:
          Partner Partner   LACP Partner  Partner   Partner  Partner     Partner
Port      Flags   State     Port Priority Admin Key Oper Key Port Number Port State
--------------------------------------------------------------------------------
Gi3/2     SA      bndl      32768         0x0       0x1      0x303       0x3d


Port: Gi3/3
------------
Port state    = bndl
Channel group =    1        Mode = LACP/ active
Port-channel  = Po1

Flags:  S - Device is sending Slow LACPDUs   F - Device is sending fast LACPDUs.
        A - Device is in active mode.        P - Device is in passive mode.

Local information:
                            LACP port     Admin     Oper    Port        Port
Port      Flags   State     Priority      Key       Key     Number      State
--------------------------------------------------------------------------------
Gi3/3     SA      bndl      32768         0x1       0x1     0x304       0x3d

Partner's information:
          Partner Partner   LACP Partner  Partner   Partner  Partner     Partner
Port      Flags   State     Port Priority Admin Key Oper Key Port Number Port State
--------------------------------------------------------------------------------
Gi3/3     SA      bndl      32768         0x0       0x1      0x302       0x3d
```

The following is sample output from the **show port-channel protocol** command:

```
hostname# show port-channel protocol
        Channel-group listing:
        ----------------------

Group: 1
----------
Protocol: LACP
```

Related Commands

Command	Description
channel-group	Adds an interface to an EtherChannel.
interface port-channel	Configures an EtherChannel.
lacp max-bundle	Specifies the maximum number of active interfaces allowed in the channel group.
lacp port-priority	Sets the priority for a physical interface in the channel group.
lacp system-priority	Sets the LACP system priority.
port-channel load-balance	Configures the load-balancing algorithm.
port-channel min-bundle	Specifies the minimum number of active interfaces required for the port-channel interface to become active.

Command	Description
show lacp	Displays LACP information such as traffic statistics, system identifier, and neighbor details.
show port-channel load-balance	Displays port-channel load-balance information along with the hash result and member interface selected for a given set of parameters.

show port-channel load-balance

For EtherChannels, to display the current port-channel load-balance algorithm, and optionally to view the member interface selected for a given set of parameters, enter this command in privileged EXEC mode.

show port-channel *channel_group_number* **load-balance** [**hash-result** {**ip** | **ipv6** | **mac** | **l4port** | **mixed** | **vlan-only** *number*} *parameters*]

Syntax Description

channel_group_number	Specifies the EtherChannel channel group number, between 1 and 48.
hash-result	(Optional) Shows the member interface chosen after hashing values you enter for the current load-balancing algorithm.
ip	(Optional) Specifies IPv4 packet parameters.
ipv6	(Optional) Specifies IPv6 packet parameters.
l4port	(Optional) Specifies port packet parameters.
mac	(Optional) Specifies MAC addresss packet parameters.
mixed	(Optional) Specifies a combination of IP or IPv6 parameters, along with ports and/or the VLAN ID.
parameters	(Optional) Packet parameters, depending on the type. For example, for **ip**, you can specify the source IP address, the destination IP address, and/or the VLAN ID.
vlan-only	(Optional) Specifies the VLAN ID for a packet.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
8.4(1)	We introduced this command.

Usage Guidelines

By default, the ASA balances the packet load on interfaces according to the source and destination IP address (**src-dst-ip**) of the packet. To change the algorithm, see the **port-channel load-balance** command.

This command lets you view the current load-balancing algorithm, but, with the **hash-result** keyword, also lets you test which member interface will be chosen for a packet with given parameters. This command only tests against the current load-balancing algorithm. For example, if the algorithm is src-dst-ip, then enter the IPv4 or IPv6 source and destination IP addresses. If you enter other arguments not used by the current algorithm, they are ignored, and the unentered values actually used by the algorithm default to 0. For example, if the algorithm is vlan-src-ip, then enter:

```
show port-channel 1 load-balance hash-result ip source 10.1.1.1 vlan 5
```

If you enter the following, then the vlan-src-ip algorithm assumes a source IP address of 0.0.0.0 and VLAN 0, and ignores the values you enter:

```
show port-channel 1 load-balance hash-result l4port source 90 destination 100
```

Examples

The following is sample output from the **show port-channel 1 load-balance** command:

```
hostname# show port-channel 1 load-balance
EtherChannel Load-Balancing Configuration:
       src-dst-ip

EtherChannel Load-Balancing Addresses UsedPer-Protocol:
Non-IP: Source XOR Destination MAC address
 IPv4: Source XOR Destination IP address
 IPv6: Source XOR Destination IP address
```

The following is sample output from the **show port-channel 1 load-balance hash-result** command, where the entered parameters match the current algorithm (src-dst-ip):

```
hostname# show port-channel 1 load-balance hash-result ip source 10.1.1.1 destination
10.5.5.5
Would select GigabitEthernet2/1 based on algorithm src-dst-ip
```

The following is sample output from the **show port-channel 1 load-balance hash-result** command, where the entered parameters do not match the current algorithm (src-dst-ip), and the hash uses 0 values:

```
hostname# show port-channel 1 load-balance hash-result l4port source 5
Would select GigabitEthernet3/2 of Port-channel1 based on algorithm src-dst-ip
```

Related Commands

Command	Description
channel-group	Adds an interface to an EtherChannel.
interface port-channel	Configures an EtherChannel.
lacp max-bundle	Specifies the maximum number of active interfaces allowed in the channel group.
lacp port-priority	Sets the priority for a physical interface in the channel group.
lacp system-priority	Sets the LACP system priority.
port-channel load-balance	Configures the load-balancing algorithm.
port-channel min-bundle	Specifies the minimum number of active interfaces required for the port-channel interface to become active.

Command	Description
show lacp	Displays LACP information such as traffic statistics, system identifier and neighbor details.
show port-channel	Displays EtherChannel information in a detailed and one-line summary form. This command also displays the port and port-channel information.

show power inline

For models with PoE interfaces, such as the ASA 5505, use the **show power inline** command in user EXEC mode to show power status of the interfaces.

show power inline

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
User EXEC	•	•	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

You can use PoE interfaces to connect devices that require power, such as an IP phone or a wireless access point.

Examples

The following is sample output from the **show power inline** command:

```
hostname# show power inline

  Interface     Power   Device
  -----------   -----   ------
  Ethernet0/0    n/a    n/a
  Ethernet0/1    n/a    n/a
  Ethernet0/2    n/a    n/a
  Ethernet0/3    n/a    n/a
  Ethernet0/4    n/a    n/a
  Ethernet0/5    n/a    n/a
  Ethernet0/6    On     Cisco
  Ethernet0/7    Off    n/a
```

Table 53-1 shows each field description:

Table 53-1 show power inline Fields

Field	Description
Interface	Shows all interfaces on the ASA, including ones that do not have PoE available.
Power	Shows whether the power is On or Off. If a device does not need power, if there is no device on that interface, or if the interface is shut down the value is Off. If the interface does not support PoE, then the value is n/a.
Device	Shows the type of device obtaining power, either Cisco or IEEE. If the device does not draw power, the value is n/a. The display shows Cisco when the device is a Cisco powered device. IEEE indicates that the device is an IEEE 802.3af- compliant powered device.

Related Commands

Command	Description
clear configure interface	Clears all configuration for an interface.
clear interface	Clears counters for the **show interface** command.
interface	Configures an interface and enters interface configuration mode.
show interface	Displays the runtime status and statistics of interfaces.

show priority-queue statistics

To display the priority-queue statistics for an interface, use the **show priority-queue statistics** command in privileged EXEC mode.

show priority-queue statistics [*interface-name*]

Syntax Description

interface-name	(Optional) Specifies the name of the interface for which you want to show the best-effort and low-latency queue details.

Defaults

If you omit the interface name, this command shows priority-queue statistics for all configured interfaces.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

This example shows the use of the **show priority-queue statistics** command for the interface named test, and the command output. In this output, BE indicates the best-effort queue, and LLQ represents the low-latency queue:

```
hostname# show priority-queue statistics test

Priority-Queue Statistics interface test

Queue Type      = BE
Packets Dropped   = 0
Packets Transmit  = 0
Packets Enqueued  = 0
Current Q Length  = 0
Max Q Length      = 0

Queue Type      = LLQ
Packets Dropped   = 0
Packets Transmit  = 0
Packets Enqueued  = 0
Current Q Length  = 0
Max Q Length      = 0
hostname#
```

Related Commands

Command	Description
clear configure priority-queue	Removes the priority-queue configuration from the named interface.
clear priority-queue statistics	Clears the priority-queue statistics counters for an interface or for all configured interfaces.
priority-queue	Configures priority queueing on an interface.
show running-config priority-queue	Shows the current priority-queue configuration on the named interface.

show processes

To display a list of the processes that are running on the ASA, use the **show processes** command in privileged EXEC mode.

show processes [**cpu-usage** [[**non-zero**][**sorted**]] [**cpu-hog | memory | internals**]

Syntax Description

cpu-hog	Shows number and detail of processes that are hogging the CPU (that is, using the CPU for more than 100 milliseconds).
cpu-usage	Shows percentage of CPU used by each process for the last 5 seconds, 1 minute and 5 minutes.
internals	Shows internal details of each process.
memory	Shows memory allocation for each process.
non-zero	(Optional) Shows processes with non-zero CPU usage.
sorted	(Optional) Shows sorted CPU usage for processes.

Defaults

By default, this command displays the processes running on the ASA.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	Support for this command was introduced.
7.0(4)	The runtime value was enhanced to display accurracy within one millisecond.
7.2(1)	The output display was enhanced to display more detailed information about processes that hog the CPU.
8.0(1)	Added the **cpu-usage** keyword.

Usage Guidelines

Processes are lightweight threads that require only a few instructions. The **show processes** commands display a list of the processes that are running on the ASA, as follows:

Command	Data Displayed	Description
show processes	PC	Program counter.
show processes	Stack Pointer	Stack pointer.
show processes	STATE	Address of thread queue.

Command	Data Displayed	Description
show processes	Runtime	Number of milliseconds that the thread has been running based on CPU clock cycles. The accurracy is within one millisecond for complete and accurate accounting of process CPU usage based on CPU clock cycles (<10ns resolution) instead of clock ticks (10ms resolution).
show processes	SBASE	Stack base address.
show processes	Stack	Current number of bytes in use and the total size of the stack.
show processes	Process	Function of the thread.
show processes cpu-usage	MAXHOG	Maximum CPU hog runtime in milliseconds.
show processes cpu-usage	NUMHOG	Number of CPU hog runs.
show processes cpu-usage	LASTHOG	Last CPU hog runtime in milliseconds.
show processes cpu-usage	PC	Instruction pointer of the CPU hogging process.
show processes cpu-usage	Traceback	Stack trace of the CPU hogging process. The traceback can have up to 14 addresses.
show processes internals	Invoked Calls	Number of times the scheduler ran the process.
show processes internals	Giveups	Number of times the process yielded the CPU back to the scheduler.

Use the **show processes cpu-usage** command to narrow down a particular process on the ASA that might be using the CPU of the ASA. You can use the **sorted** and **non-zero** commands to further customize the output of the **show processes cpu-usage** command.

With the scheduler and total summary lines, you can run two consecutive **show proccesses** commands and compare the output to determine:

- Consumption of 100% of the CPU.
- Percentage of CPU used by each thread, determined by comparing the runtime delta of a thread to the total runtime delta.

Examples

The following example shows how to display a list of processes that are running on the ASA:

```
hostname(config)# show processes

    PC       SP       STATE       Runtime    SBASE     Stack Process
Hsi 00102aa0 0a63f288 0089b068     117460 0a63e2d4 3600/4096 arp_timer
Lsi 00102aa0 0a6423b4 0089b068         10 0a64140c 3824/4096 FragDBGC
Hwe 004257c8 0a7cacd4 0082dfd8          0 0a7c9d1c 3972/4096 udp_timer
Lwe 0011751a 0a7cc438 008ea5d0         20 0a7cb474 3560/4096 dbgtrace
<--- More --->

-     -        -         -        638515    -         -     scheduler
-     -        -         -       2625389    -         -     total
```

The following example shows how to display the percentage of CPU used by each process:

```
hostname(config)# show proc cpu-usage non-zero
PC         Thread      5Sec    1Min    5Min    Process
0818af8e   d482f92c    0.1%    0.1%    0.1%    Dispatch Unit
08bae136   d48180f0    0.1%    0.0%    0.2%    ssh
-------------------------------------
```

The following example shows how to display the number and detail of processes that are hogging the CPU:

```
hostname(config)# show processes cpu-hog
Process:      Unicorn Admin Handler, NUMHOG: 1, MAXHOG: 13, LASTHOG: 13
LASTHOG At:   08:30:15 PST Jan 20 2011
PC:           0x08413a62
Call stack:   0x084f6c5d  0x08412cc3  0x08407a85  0x0806e0ea  0x08a4b17d  0x0806e0ea
0x0849bffd
              0x084950cd  0x0849530c  0x08495636  0x0849bc59  0x080680cc

(other lines deleted for brevity)
```

The following example shows how to display the memory allocation for each process:

```
hostname(config)# show processes memory

-------------------------------------------------------------
Allocs   Allocated       Frees         Freed         Process
          (bytes)                      (bytes)
-------------------------------------------------------------
23512    13471545        6             180           *System Main*
0        0               0             0             lu_rx
2        8324            16            19488         vpnlb_thread
```

The following example shows how to display the internal details of each process:

```
hostname# show processes internals

     Invoked      Giveups  Process
           1            0  block_diag
    19108445     19108445  Dispatch Unit
           1            0  CF OIR
           1            0  Reload Control Thread
           1            0  aaa
           2            0  CMGR Server Process
           1            0  CMGR Timer Process
           2            0  dbgtrace
          69            0  557mcfix
    19108019     19108018  557poll
           2            0  557statspoll
           1            0  Chunk Manager
         135            0  PIX Garbage Collector
           6            0  route_process
           1            0  IP Address Assign
```

```
                1            0  QoS Support Module
                1            0  Client Update Task
             8973         8968  Checkheaps
                6            0  Session Manager
              237          235  uauth
(other lines deleted for brevity)
```

show quota management-session

To show statistics for the current management session:, use the **show quota management-session** command in privileged EXEC mode.

show quota management-session

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
9.1(2)	This command was introduced.

Usage Guidelines

This command shows the following statistics for the current management session:

- Limit
- Warning level
- Current count
- High water mark
- Number of warnings generated
- Number of errors generated

Examples

The following example shows statistics for the current management session:

```
hostname# show quota management-session
quota management-session limit 250
quota management-session warning level 225
quota management-session level 1
quota management-session high water 1
quota management-session errors 0
quota management-session warnings 0
```

Related Commands

Command	Description
show running-config quota management-session	Shows the current value of the management session quota.
quota management-session	Sets the number of simultaneous ASDM, SSH, and Telnet sessions allowed on the device.

show reload

To display the reload status on the ASA, use the **show reload** command in privileged EXEC mode.

show reload

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command has no usage guidelines.

Examples

The following example shows that a reload is scheduled for 12:00 a.m. (midnight) on Saturday, April 20:

```
hostname# show reload
Reload scheduled for 00:00:00 PDT Sat April 20 (in 12 hours and 12 minutes)
```

Related Commands

Command	Description
reload	Reboots and reloads the configuration.

show resource allocation

To show the resource allocation for each resource across all classes and class members, use the **show resource allocation** command in privileged EXEC mode.

show resource allocation [**detail**]

Syntax Description

detail	Shows additional information.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	—	•	•

Command History

Release	Modification
7.2(1)	This command was introduced.
9.0(1)	A new resource class, routes, was created to set the maximum number of routing table entries in each context. New resource types, vpn other and vpn burst other, were created to set the maximum number of site-to-site VPN tunnels in each context.

Usage Guidelines

This command shows the resource allocation, but does not show the actual resources being used. See the **show resource usage** command for more information about actual resource usage.

Examples

The following is sample output from the **show resource allocation** command. The display shows the total allocation of each resource as an absolute value and as a percentage of the available system resources.

```
hostname# show resource allocation
Resource                    Total       % of Avail
 Conns [rate]               35000           N/A
 Inspects [rate]            35000           N/A
 Syslogs [rate]             10500           N/A
 Conns                     305000           30.50%
 Hosts                      78842           N/A
 SSH                           35           35.00%
 Telnet                        35           35.00%
 Routes                     25000           0.00%
 Xlates                     91749           N/A
```

```
Other VPN Sessions            20           2.66%
Other VPN Burst               20           2.66%
All                       unlimited
```

Table 53-2 shows each field description.

Table 53-2 show resource allocation Fields

Field	Description
Resource	The name of the resource that you can limit.
Total	The total amount of the resource that is allocated across all contexts. The amount is an absolute number of concurrent instances or instances per second. If you specified a percentage in the class definition, the ASA converts the percentage to an absolute number for this display.
% of Avail	The percentage of the total system resources that is allocated across all contexts, if available. If a resource does not have a system limit, this column shows N/A.

The following is sample output from the **show resource allocation detail** command:

```
hostname# show resource allocation detail
Resource Origin:
    A    Value was derived from the resource 'all'
    C    Value set in the definition of this class
    D    Value set in default class
Resource         Class          Mmbrs  Origin      Limit      Total    Total %
Conns [rate]     default          all      CA  unlimited
                 gold               1       C      34000      34000     N/A
                 silver             1      CA      17000      17000     N/A
                 bronze             0      CA       8500
                 All Contexts:      3                         51000     N/A

Inspects [rate]  default          all      CA  unlimited
                 gold               1      DA  unlimited
                 silver             1      CA      10000      10000     N/A
                 bronze             0      CA       5000
                 All Contexts:      3                         10000     N/A

Syslogs [rate]   default          all      CA  unlimited
                 gold               1       C       6000       6000     N/A
                 silver             1      CA       3000       3000     N/A
                 bronze             0      CA       1500
                 All Contexts:      3                          9000     N/A

Conns            default          all      CA  unlimited
                 gold               1       C     200000     200000     20.00%
                 silver             1      CA     100000     100000     10.00%
                 bronze             0      CA      50000
                 All Contexts:      3                        300000     30.00%

Hosts            default          all      CA  unlimited
                 gold               1      DA  unlimited
                 silver             1      CA      26214      26214      N/A
                 bronze             0      CA      13107
                 All Contexts:      3                         26214      N/A

SSH              default          all       C          5
                 gold               1       D          5          5      5.00%
                 silver             1      CA         10         10     10.00%
                 bronze             0      CA          5
                 All Contexts:      3                            20     20.00%

Telnet           default          all       C          5
                 gold               1       D          5          5      5.00%
                 silver             1      CA         10         10     10.00%
                 bronze             0      CA          5
                 All Contexts:      3                            20     20.00%
Routes           default          all       C  unlimited                N/A
                 gold               1       D  unlimited          5      N/A
                 silver             1      CA         10         10      N/A
                 bronze             0      CA          5                 N/A
                 All Contexts:      3                            20      N/A

Xlates           default          all      CA  unlimited
                 gold               1      DA  unlimited
                 silver             1      CA      23040      23040     N/A
                 bronze             0      CA      11520
                 All Contexts:      3                         23040     N/A

mac-addresses    default          all       C      65535
                 gold               1       D      65535      65535    100.00%
                 silver             1      CA       6553       6553      9.99%
```

```
bronze              0       CA        3276
All Contexts:       3                           137623     209.99%
```

Table 53-3 shows each field description.

Table 53-3 show resource allocation detail Fields

Field	Description
Resource	The name of the resource that you can limit.
Class	The name of each class, including the default class. The All contexts field shows the total values across all classes.
Mmbrs	The number of contexts assigned to each class.
Origin	The origin of the resource limit, as follows: • A—You set this limit with the **all** option, instead of as an individual resource. • C—This limit is derived from the member class. • D—This limit was not defined in the member class, but was derived from the default class. For a context assigned to the default class, the value will be "C" instead of "D." The ASA can combine "A" with "C" or "D."
Limit	The limit of the resource per context, as an absolute number. If you specified a percentage in the class definition, the ASA converts the percentage to an absolute number for this display.
Total	The total amount of the resource that is allocated across all contexts in the class. The amount is an absolute number of concurrent instances or instances per second. If the resource is unlimited, this display is blank.
% of Avail	The percentage of the total system resources that is allocated across all contexts in the class, if available. If the resource is unlimited, this display is blank. If the resource does not have a system limit, this column shows N/A.

Related Commands

Command	Description
class	Creates a resource class.
context	Adds a security context.
limit-resource	Sets the resource limit for a class.
show resource types	Shows the resource types for which you can set limits.
show resource usage	Shows the resource usage of the ASA.

show resource types

To view the resource types for which the ASA tracks usage, use the **show resource types** command in privileged EXEC mode.

show resource types

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	This command shows additional resource types that you can manage for each context.
9.0(1)	A new resource class, routes, was created to set the maximum number of routing table entries in each context. New resource types, vpn other and vpn burst other, were created to set the maximum number of site-to-site VPN tunnels in each context.

Examples

The following sample display shows the resource types:

```
hostname# show resource types

Rate limited resource types:
  Conns           Connections/sec
  Inspects        Inspects/sec
  Syslogs         Syslogs/sec

Absolute limit types:
  Conns           Connections
  Hosts           Hosts
  Mac-addresses   MAC Address table entries
  ASDM            ASDM Connections
  SSH             SSH Sessions
  Telnet          Telnet Sessions
  Xlates          XLATE Objects
  Routes          Routing Table Entries
  Other-vpn       Other VPN licenses
```

```
Other-vpn-burst Allowable burst for Other VPN licenses
All             All Resources
```

Related Commands

Command	Description
clear resource usage	Clears the resource usage statistics
context	Adds a security context.
show resource usage	Shows the resource usage of the ASA.

show resource usage

To view the resource usage of the ASA or for each context in multiple mode, use the **show resource usage** command in privileged EXEC mode.

show resource usage [**context** *context_name* | **top** *n* | **all** | **summary** | **system** | **detail**] [**resource** {[**rate**] *resource_name* | **all**}] [**counter** *counter_name* [*count_threshold*]]

Syntax Description

context *context_name*	(Multiple mode only) Specifies the context name for which you want to view statistics. Specify **all** for all contexts; the ASA lists the context usage for each context.
count_threshold	Sets the number above which resources are shown. The default is 1. If the usage of the resource is below the number you set, then the resource is not shown. If you specify **all** for the counter name, then the *count_threshold* applies to the current usage. **Note** To show all resources, set the *count_threshold* to **0**.
counter *counter_name*	Shows counts for the following counter types: • **current**—Shows the active concurrent instances or the current rate of the resource. • **peak**—Shows the peak concurrent instances, or the peak rate of the resource since the statistics were last cleared, either using the **clear resource usage** command or because the device rebooted. • **denied**—Shows the number of instances that were denied because they exceeded the resource limit shown in the Limit column. • **all**—(Default) Shows all statistics.
detail	Shows the resource usage of all resources, including those you cannot manage. For example, you can view the number of TCP intercepts.

resource [**rate**] *resource_name*	Shows the usage of a specific resource. Specify **all** (the default) for all resources. Specify **rate** to show the rate of usage of a resource. Resources that are measured by rate include **conns**, **inspects**, and **syslogs**. You must specify the **rate** keyword with these resource types. The conns resource is also measured as concurrent connections; only use the **rate** keyword to view the connections per second. Resources include the following types: • **asdm**—ASDM management sessions. • **conns**—TCP or UDP connections between any two hosts, including connections between one host and multiple other hosts. • **inspects**—Application inspections. • **hosts**—Hosts that can connect through the ASA. • **mac-addresses**—For transparent firewall mode, the number of MAC addresses allowed in the MAC address table. • **routes—**Routing Table entries. • **ssh**—SSH sessions. • **syslogs**—System log messages. • **telnet**—Telnet sessions. • (Multiple mode only) **VPN Other**—Site-to-site VPN sessions. • (Multiple mode only) **VPN Burst Other**—Site-to-site VPN burst sessions. • **xlates**—NAT translations.
summary	(Multiple mode only) Shows all context usage combined.
system	(Multiple mode only) Shows all context usage combined, but shows the system limits for resources instead of the combined context limits.
top *n*	(Multiple mode only) Shows the contexts that are the top *n* users of the specified resource. You must specify a single resource type, and not **resource all**, with this option.

Defaults

For multiple context mode, the default context is **all**, which shows resource usage for every context. For single mode, the context name is ignored and the output shows the “context” as “System.”

The default resource name is **all**, which shows all resource types.

The default counter name is **all**, which shows all statistics.

The default count threshold is **1**.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	This command shows the denied resources, because you can limit the resources for each context.
9.0(1)	A new resource class, routes, was created to set the maximum number of routing table entries in each context. New resource types, vpn other and vpn burst other, were created to set the maximum number of site-to-site VPN tunnels in each context.

Examples

The following is sample output from the **show resource usage context** command, which shows the resource usage for the admin context:

```
hostname# show resource usage context admin

Resource              Current         Peak      Limit    Denied  Context
Telnet                      1            1          5         0  admin
Conns                      44           55        N/A         0  admin
Hosts                      45           56        N/A         0  admin
```

The following is sample output from the **show resource usage summary** command, which shows the resource usage for all contexts and all resources. This sample shows the limits for six contexts.

```
hostname# show resource usage summary

Resource              Current         Peak      Limit     Denied Context
Syslogs [rate]           1743         2132      12000(U)       0 Summary
Conns                     584          763     100000(S)       0 Summary
Xlates                   8526         8966      93400          0 Summary
Hosts                     254          254     262144          0 Summary
Conns [rate]              270          535      42200       1704 Summary
Inspects [rate]           270          535     100000(S)       0 Summary
Other VPN Sessions          0           10         10        740 Summary
Other VPN Burst             0           10         10        730 Summary
U = Some contexts are unlimited and are not included in the total.
S = System: Combined context limits exceed the system limit; the system limit is shown.
```

The following is sample output from the **show resource usage system** command, which shows the resource usage for all contexts, but it shows the system limit instead of the combined context limits:

```
hostname# show resource usage system

Resource              Current         Peak      Limit    Denied  Context
Telnet                      3            5        100         0  System
SSH                         5            7        100         0  System
Conns                      40           55        N/A         0  System
Hosts                      44           56        N/A         0  System
```

The following is sample output from the **show resource usage detail counter all 0** command, which shows all resources, and not only those you can manage:

```
hostname# show resource usage detail counter all 0

Resource              Current         Peak      Limit         Denied Context
memory                1012028      1538428  unlimited              0 admin
chunk:aaa                   0            0  unlimited              0 admin
chunk:aaa_queue             0            0  unlimited              0 admin
chunk:acct                  0            0  unlimited              0 admin
chunk:channels             25           39  unlimited              0 admin
chunk:CIFS                  0            0  unlimited              0 admin
chunk:conn                  0            0  unlimited              0 admin
chunk:crypto-conn           0            0  unlimited              0 admin
chunk:dbgtrace              1            2  unlimited              0 admin
chunk:dhcpd-radix           0            0  unlimited              0 admin
chunk:dhcp-relay-r          0            0  unlimited              0 admin
chunk:dhcp-lease-s          0            0  unlimited              0 admin
chunk:dnat                  0            0  unlimited              0 admin
chunk:ether                 0            0  unlimited              0 admin
chunk:est                   0            0  unlimited              0 admin

...

Telnet                      0            0          5              0 admin
SSH                         1            1          5              0 admin
ASDM                        0            1          5              0 admin
Syslogs [rate]              0           68  unlimited              0 admin
aaa rate                    0            0  unlimited              0 admin
url filter rate             0            0  unlimited              0 admin
Conns                       1            6  unlimited              0 admin
Xlates                      0            0  unlimited              0 admin
tcp conns                   0            0  unlimited              0 admin
Hosts                       2            3  unlimited              0 admin
Other VPN Sessions          0           10        750            740 admin
Other VPN Burst             0           10        750            730 admin
udp conns                   0            0  unlimited              0 admin
smtp-fixups                 0            0  unlimited              0 admin
Conns [rate]                0            7  unlimited              0 admin
establisheds                0            0  unlimited              0 admin
pps                         0            0  unlimited              0 admin
syslog rate                 0            0  unlimited              0 admin
bps                         0            0  unlimited              0 admin
Fixups [rate]               0            0  unlimited              0 admin
non tcp/udp conns           0            0  unlimited              0 admin
tcp-intercepts              0            0  unlimited              0 admin
globals                     0            0  unlimited              0 admin
np-statics                  0            0  unlimited              0 admin
statics                     0            0  unlimited              0 admin
nats                        0            0  unlimited              0 admin
ace-rules                   0            0        N/A              0 admin
aaa-user-aces               0            0        N/A              0 admin
filter-rules                0            0        N/A              0 admin
est-rules                   0            0        N/A              0 admin
aaa-rules                   0            0        N/A              0 admin
console-access-rul          0            0        N/A              0 admin
policy-nat-rules            0            0        N/A              0 admin
fixup-rules                 0            0        N/A              0 admin
aaa-uxlates                 0            0  unlimited              0 admin
CP-Traffic:IP               0            0  unlimited              0 admin
CP-Traffic:ARP              0            0  unlimited              0 admin
CP-Traffic:Fixup            0            0  unlimited              0 admin
CP-Traffic:NPCP             0            0  unlimited              0 admin
```

```
CP-Traffic:Unknown          0            0  unlimited            0 admin
```

Related Commands

Command	Description
class	Creates a resource class.
clear resource usage	Clears the resource usage statistics
context	Adds a security context.
limit-resource	Sets the resource limit for a class.
show resource types	Shows a list of resource types.

show rip database

To display the information that is stored in the RIP topological database, use the **show rip database** command in privileged EXEC mode.

show rip database [*ip_addr* [*mask*]]

Syntax Description

ip_addr	(Optional) Limits the display routes for the specified network address.
mask	(Optional) Specifies the network mask for the optional network address.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

The RIP routing-related **show** commands are available in privileged EXEC mode on the ASA. You do not need to be in an RIP configuration mode to use the RIP-related **show** commands.

The RIP database contains all of the routes learned through RIP. Routes that appear in this database may not necessarily appear in the routing table. See the *Cisco Security Appliance Command Line Configuration Guide* for information about how the routing table is populated from the routing protocol databases.

Examples

The following is sample output from the **show rip database** command:

```
hostname# show rip database

10.0.0.0/8    auto-summary
10.11.11.0/24    directly connected, GigabitEthernet0/2
10.1.0.0/8    auto-summary
10.11.0.0/16    int-summary
10.11.10.0/24    directly connected, GigabitEthernet0/3
192.168.1.1/24
    [2] via 10.11.10.5, 00:00:14, GigabitEthernet0/3
```

The following is sample output from the **show rip database** command with a network address and mask:

```
Router# show rip database 172.19.86.0 255.255.255.0
```

```
172.19.86.0/24
    [1] via 172.19.67.38, 00:00:25, GigabitEthernet0/2
    [2] via 172.19.70.36, 00:00:14, GigabitEthernet0/3
```

Related Commands

Command	Description
router rip	Enables RIP routing and configures global RIP routing parameters.

show route

To display the routing table, use the **show route** command in privileged EXEC mode.

show route [*interface_name* [*ip_address* [*netmask* [**static**]]]] [**failover**] [**cluster]**

Syntax Description

cluster	(Optional) Displays the routing information base (RIB) epoch number (sequence number), the current timer value, and the network descriptor block epoch number (sequence number).
failover	(Optional) Displays the current sequence number of the routing table and routing entries after failover has occurred, and a standby unit becomes the active unit.
interface_name	(Optional) Limits the display to route entries that use the specified interface.
ip_address	(Optional) Limits the display to routes to the specified destination.
netmask	(Optional) Defines the network mask to apply to the specified destination.
static	(Optional) Limits the display to static routes.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.
8.4(1)	The **failover** keyword was added. The output shows the RIB epoch number (sequence number), current timer value, and network descriptor block epoch number (sequence number).
9.0(1)	The **cluster** keyword was added. Applies to the dynamic routing protocols (EIGRP, OSPF, and RIP) and is only available on the ASA 5580 and 5585-X.

Usage Guidelines

The **show route** command provides output similar to the **show ipv6 route** command, except that the information is IPv4-specific.

Note The **clustering** and **failover** keywords do not appear unless these features are configured on the ASA.

The **show route** command lists the "best" routes for new connections. When you send a permitted TCP SYN to the backup interface, the ASA can only respond using the same interface. If there is no default route in the RIB on that interface, the ASA drops the packet because of no adjacency. Everything that is configured as shown in the **show running-config route** command is maintained in certain data structures in the system.

You can check the backend interface-specific routing table with the **show asp table routing** command. This design is similar to OSPF or EIGRP, in which the protocol-specific route database is not the same as the global routing table, which only displays the "best" routes. This behavior is by design.

Examples

The following is sample output from the **show route** command:

```
hostname# show route

Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is 10.86.194.1 to network 0.0.0.0

C    10.86.194.0 255.255.255.0 is directly connected, outside
C    10.40.10.0 255.255.255.0 is directly connected, inside
C    192.168.2.0 255.255.255.0 is directly connected, faillink
C    192.168.3.0 255.255.255.0 is directly connected, statelink
```

The following is sample output of the **show route** command on the ASA 5505. The output displays the internal loopback address, which is used by the VPN hardware client for individual user authentication.

```
hostname(config)# show route

Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is 10.86.194.1 to network 0.0.0.0

C    127.1.0.0 255.255.0.0 is directly connected, _internal_loopback
C    10.86.194.0 255.255.254.0 is directly connected, outside
S*   0.0.0.0 0.0.0.0 [1/0] via 10.86.194.1, outside
```

The following is sample output of the **show route failover** command, which shows the synchronization of OSPF and EIGRP routes to the standby unit after failover:

```
hostname(config)# show route failover

Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route
```

```
Gateway of last resort is 10.86.194.1 to network 0.0.0.0
Routing table sequence number 1
Reconvergence timer 00.20 (Running)

S    10.10.10.0 255.0.0.0 [1/0] via 10.10.10.1, mgmt, seq 1
                        [1/0] via 10.10.10.2, mgmt, seq 1
D    209.165.200.224 255.255.255.0 [90/28416] via 200.165.200.225, 0:00:15, outside, seq 1

O   198.51.100.0 255.255.255.0 [110/28416] via 198.51.100.10, 0:24:45, inside, seq 0

D   10.65.68.220 255.255.255.255 [1/0] via 10.76.11.1, mgmt, seq 1
```

The following is sample output from the **show route cluster** command:

```
hostname(cfg-cluster)# show route cluster

Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

Routing table seq num 2
Reconvergence timer expires in 52 secs

C    70.0.0.0 255.255.255.0 is directly connected, cluster, seq 1
C    172.23.0.0 255.255.0.0 is directly connected, tftp, seq 1
C    200.165.200.0 255.255.255.0 is directly connected, outside, seq 1
C    198.51.100.0 255.255.255.0 is directly connected, inside, seq 1
O   198.51.100.0 255.255.255.0 [110/28416] via 198.51.100.10, 0:24:45, inside, seq 2
D   209.165.200.224 255.255.255.0 [90/28416] via 200.165.200.225, 0:00:15, outside, seq 2
```

Note When you use the **show ip route** command in the Cisco IOS, the **longer-prefix** keyword is available. When you use this keyword in the Cisco IOS, the route is only displayed if the specified network and mask pair match.

On the ASA, the **longer-prefix** keyword is the default behavior for the **show rout**e command; that is, no additional keyword is needed in the CLI. Because of this, you cannot see the route when you type **ip**. To obtain the supernet route, the mask value needs to be passed with the IP address.

CHAPTER 54

show running-config through show running-config cts Commands

show running-config

To display the configuration that is currently running on the ASA, use the **show running-config** command in privileged EXEC mode.

show running-config [**all**] [*command*]

Syntax Description

all	Displays the entire operating configuration, including defaults.
command	Displays the configuration associated with a specific command.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was modified.
8.3(1)	The command output displays encrypted passwords.

Usage Guidelines

The **show running-config** command displays the active configuration in memory (including saved configuration changes) on the ASA.

You can use the **running-config** keyword only in the **show running-config** command. You cannot use this keyword with **no** or **clear**, or as a standalone command, because the CLI treats it as an unsupported command. When you enter the **?**, **no ?**, or **clear ?** keywords, the **running-config** keyword is not listed in the command list.

To display the saved configuration in flash memory on the ASA, use the **show configuration** command.

The **show running-config** command output displays encrypted, masked, or clear text passwords when password encryption is either enabled or disabled.

Note ASDM commands appear in the configuration after you use it to connect to or configure the ASA.

Examples

The following is sample output from the **show running-config** command:

```
hostname# show running-config
: Saved
:
ASA Version 9.0(1)
```

```
names
!
interface Ethernet0
 nameif test
 security-level 10
 ip address 10.1.1.2 255.255.255.254
!
interface Ethernet1
 nameif inside
 security-level 100
 ip address 10.1.1.3 255.255.254.0
!
interface Ethernet2
 shutdown
 no nameif
 security-level 0
 no ip address
!
interface Ethernet3
 shutdown
 no nameif
 security-level 0
 no ip address
!
interface Ethernet4
 shutdown
 no nameif
 security-level 0
 no ip address
!
interface Ethernet5
 shutdown
 no nameif
 security-level 0
 no ip address
!
enable password 8Ry2YjIyt7RRXU24 encrypted
passwd 2KFQnbNIdI.2KYOU encrypted
hostname example1
domain-name example.com
boot system flash:/cdisk.bin
ftp mode passive
pager lines 24
mtu test 1500
mtu inside 1500
monitor-interface test
monitor-interface inside
ASDM image flash:ASDM
no ASDM history enable
arp timeout 14400
route inside 0.0.0.0 0.0.0.0 10.1.1.2
timeout xlate 3:00:00
timeout conn 2:00:00 half-closed 1:00:00 udp 0:02:00 icmp 1:00:00 rpc 1:00:00 h3
23 0:05:00 h225 1:00:00 mgcp 0:05:00 mgcp-pat 0:05:00 sip 0:30:00 sip_media 0:02
:00
timeout uauth 0:00:00 absolute
http server enable
http 0.0.0.0 0.0.0.0 inside
no snmp-server location
no snmp-server contact
snmp-server enable traps snmp
fragment size 200 test
fragment chain 24 test
fragment timeout 5 test
```

```
fragment size 200 inside
fragment chain 24 inside
fragment timeout 5 inside
telnet 0.0.0.0 0.0.0.0 inside
telnet timeout 1440
ssh timeout 5
console timeout 0
group-policy todd internal
!
class-map inspection_default
 match default-inspection-traffic
!
!
policy-map abc_global_fw_policy
 class inspection_default
  inspect dns
  inspect ftp
  inspect h323 h225
  inspect h323 ras
  inspect http
  inspect ils
  inspect mgcp
  inspect netbios
  inspect rpc
  inspect rsh
  inspect rtsp
  inspect sip
  inspect skinny
  inspect sqlnet
  inspect tftp
  inspect xdmcp
  inspect ctiqbe
  inspect cuseeme
  inspect icmp
!
terminal width 80
service-policy abc_global_fw_policy global
Cryptochecksum:bfecf4b9d1b98b7e8d97434851f57e14
: end
```

Related Commands

Command	Description
configure	Configures the ASA from the terminal.

show running-config aaa

To show the AAA configuration in the running configuration, use the **show running-config aaa** command in privileged EXEC mode.

show running-config aaa [**accounting** | **authentication** | **authorization** | **mac-exempt** | **proxy-limit**]

Syntax Description

accounting	(Optional) Show accounting-related AAA configuration.
authentication	(Optional) Show authentication-related AAA configuration.
authorization	(Optional) Show authorization-related AAA configuration.
mac-exempt	(Optional) Show MAC address exemption AAA configuration.
proxy-limit	(Optional) Show the number of concurrent proxy connections allowed per user.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show running-config aaa** command:

```
hostname# show running-config aaa
aaa authentication match infrastructure_authentication_radiusvrs infrastructure radiusvrs
aaa accounting match infrastructure_authentication_radiusvrs infrastructure radiusvrs
aaa authentication secure-http-client
aaa local authentication attempts max-fail 16
hostname#
```

Related Commands

Command	Description
aaa authentication match	Enables authentication for traffic that is identified by an access list.
aaa authorization match	Enables authorization for traffic that is identified by an access list.

Command	Description
aaa accounting match	Enables accounting for traffic that is identified by an access list.
aaa max-exempt	Specifies the use of a predefined list of MAC addresses to exempt from authentication and authorization.
aaa proxy-limit	Configure the uauth session limit by setting the maximum number of concurrent proxy connections allowed per user.

show running-config aaa-server

To display AAA server configuration, use the **show running-config aaa-server** command in privileged EXEC mode.

show running-config [**all**] **aaa-server** [*server-tag*] [(*interface-name*)] [**host** *hostname*]

Syntax Description

all	(Optional) Shows the running configuration, including default configuration values.
host *hostname*	(Optional) The symbolic name or IP address of the particular host for which you want to display AAA server statistics.
(interface-name)	(Optional) The network interface where the AAA server resides.
server-tag	(Optional) The symbolic name of the server group.

Defaults

Omitting the *server-tag* value displays the configurations for all AAA servers.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was modified to adhere to CLI guidelines.

Usage Guidelines

Use this command to display the settings for a particular server group. Use the **all** parameter to display the default as well as the explicitly configured values.

Examples

To display the running configuration for the default AAA server group, use the following command:

```
hostname(config)# show running-config default aaa-server

aaa-server group1 protocol tacacs+ accounting-mode simultaneous
reactivation-mode depletion deadtime 10
max-failed-attempts 4
hostname(config)#
```

Related Commands

Command	Description
show aaa-server	Displays AAA server statistics.
clear configure aaa-server	Clears the AAA server configuration.

show running-config aaa-server host

To display AAA server statistics for a particular server, use the **show running-config aaa-server** command in global configuration or privileged EXEC mode.

show/clear aaa-server

show running-config [**all**] **aaa-server** *server-tag* [(*interface-name*)] **host** *hostname*

Syntax Description

all	(Optional) Shows the running configuration, including default configuration values.
server-tag	The symbolic name of the server group.

Defaults

Omitting the default keyword displays only the explicitly configured configuration values, not the default values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	—	—	•
Global configuration	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was modified to adhere to CLI guidelines.

Usage Guidelines

Use this command to display the statistics for a particular server group. Use the default parameter to display the default as well as the explicitly configured values.

Examples

To display the running configuration for the server group svrgrp1, use the following command:

```
hostname(config)# show running-config default aaa-server svrgrp1
```

Related Commands

Command	Description
show running-config aaa-server	Displays AAA server settings for the indicated server, group, or protocol.
clear configure aaa	Removes the settings for all AAA servers across all groups.

show running-config access-group

To display the access group information, use the **show running-config access-group** command in privileged EXEC mode.

show running-config access-group

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show running-config access-group** command:

```
hostname# show running-config access-group
access-group 100 in interface outside
```

Related Commands

Command	Description
access-group	Binds an access list to an interface.
clear configure access-group	Removes access groups from all the interfaces.

show running-config access-list

To display the access-list configuration that is running on the ASA, use the **show running-config access-list** command in privileged EXEC mode.

show running-config [**default**] **access-list** [**alert-interval** | **deny-flow-max**]

show running-config [**default**] **access-list** *id* [*saddr_ip*]

Syntax Description

alert-interval	Shows the alert interval for generating syslog message 106001, which alerts that the system has reached a deny flow maximum.
deny-flow-max	Shows the maximum number of concurrent deny flows that can be created.
id	Identifies the access list that is displayed.
saddr_ip	Shows the access list elements that contain the specified source IP address.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	Added keyword **running-config**.

Usage Guidelines

The **show running-config access-list** command allows you to display the current running access list configuration on the ASA.

Examples

The following is sample output from the **show running-config access-list** command:

```
hostname# show running-config access-list
access-list allow-all extended permit ip any any
```

Related Commands

Command	Description
access-list ethertype	Configures an access list that controls traffic based on its EtherType.
access-list extended	Adds an access list to the configuration and configures policy for IP traffic through the firewall.

Command	Description
access-list ethertype	Configures an access list that controls traffic based on its EtherType.
clear access-list	Clears an access list counter.
clear configure access-list	Clears an access list from the running configuration.

show running-config alias

To display the overlapping addresses with dual NAT commands in the configuration, use the **show running-config alias** command in privileged EXEC mode.

show running-config alias {*interface_name*}

Syntax Description

interface_name	Internal network interface name that the destination_ip overwrites.

Defaults

This command has no default settings.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	—	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

This example shows how to display alias information:

```
hostname# show running-config alias
```

Related Commands

Command	Description
alias	Creates an alias.
clear configure alias	Deletes an alias.

show running-config arp

To show static ARP entries created by the **arp** command in the running configuration, use the **show running-config arp** command in privileged EXEC mode.

show running-config arp

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show running-config arp** command:

```
hostname# show running-config arp
arp inside 10.86.195.11 0008.023b.9893
```

Related Commands

Command	Description
arp	Adds a static ARP entry.
arp-inspection	For transparent firewall mode, inspects ARP packets to prevent ARP spoofing.
show arp	Shows the ARP table.
show arp statistics	Shows ARP statistics.

show running-config arp timeout

To view the ARP timeout configuration in the running configuration, use the **show running-config arp timeout** command in privileged EXEC mode.

show running-config arp timeout

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was changed from **show arp timeout**.

Examples

The following is sample output from the **show running-config arp timeout** command:

```
hostname# show running-config arp timeout
arp timeout 20000 seconds
```

Related Commands

Command	Description
arp	Adds a static ARP entry.
arp timeout	Sets the time before the ASA rebuilds the ARP table.
arp-inspection	For transparent firewall mode, inspects ARP packets to prevent ARP spoofing.
show arp statistics	Shows ARP statistics.

show running-config arp-inspection

To view the ARP inspection configuration in the running configuration, use the **show running-config arp-inspection** command in privileged EXEC mode.

show running-config arp-inspection

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	—	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was changed from **show arp timeout**.

Examples

The following is sample output from the **show running-config arp-inspection** command:

```
hostname# show running-config arp-inspection

arp-inspection inside1 enable no-flood
```

Related Commands

Command	Description
arp	Adds a static ARP entry.
arp-inspection	For transparent firewall mode, inspects ARP packets to prevent ARP spoofing.
clear configure arp-inspection	Clears the ARP inspection configuration.
firewall transparent	Sets the firewall mode to transparent.
show arp statistics	Shows ARP statistics.

show running-config asdm

To display the **asdm** commands in the running configuration, use the **show running-config asdm** command in privileged EXEC mode.

show running-config asdm [**group** | **location**]

Syntax Description

group	(Optional) Limits the display to the **asdm group** commands in the running configuration.
location	(Optional) Limits the display to the **asdm location** commands in the running configuration.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was changed from the **show running-config pdm** command to the **show running-config asdm** command.

Usage Guidelines

To remove the **asdm** commands from the configuration, use the **clear configure asdm** command.

Note On ASAs running in multiple context mode, the **show running-config asdm group** and **show running-config asdm location** commands are only available in the system execution space.

Examples

The following is sample output from the **show running-configuration asdm** command:

```
hostname# show running-config asdm
asdm image flash:/ASDM
asdm history enable
hostname#
```

Related Commands

Command	Description
show asdm image	Displays the current ASDM image file.

show running-config auth-prompt

To displays the current authentication prompt challenge text, use the **show running-config auth-prompt** command in global configuration mode.

show running-config [**default**] **auth-prompt**

Syntax Description

default	(Optional) Display the default authentication prompt challenge text.

Defaults

Display the configured authentication prompt challenge text.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was modified for this release to conform to CLI guidelines.

Usage Guidelines

After you configure the authentication prompt with the **auth-prompt** command, use the **show running-config auth-prompt** command to view the current prompt text.

Examples

The following example shows the output of the **show running-config auth-prompt** command:

```
hostname(config)# show running-config auth-prompt
auth-prompt prompt Please login:
auth-prompt accept You're in!
auth-prompt reject Try again.
hostname(config)#
```

Related Commands

auth-prompt	Set the user authorization prompts.
clear configure auth-prompt	Reset the user authorization prompts to the default value.

show running-config banner

To display the specified banner and all the lines that are configured for it, use the **show running-config banner** command in privileged EXEC mode.

show running-config banner [**exec | login | motd**]

Syntax Description

exec	(Optional) Displays the banner before the enable prompt.
login	(Optional) Displays the banner before the password login prompt when accessing the ASA using Telnet.
motd	(Optional) Displays the message-of-the-day banner.

Defaults

This command has no default settings.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	The **running-config** keyword was added.

Usage Guidelines

The **show running-config banner** command displays the specified banner keyword and all the lines configured for it. If a keyword is not specified, then all banners display.

Examples

This example shows how to display the message-of-the-day (motd) banner:

```
hostname# show running-config banner motd
```

Related Commands

Command	Description
banner	Creates a banner.
clear configure banner	Deletes a banner.

show running-config call-home

To display the Call Home running configuration, use the **show running-config call-home** command in privileged EXEC mode.

[**cluster exec**] **show running-config call-home**

Syntax Description

cluster exec	(Optional) In a clustering environment, enables you to issue the **show running-config call-home** command in one unit and run the command in all the other units at the same time.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
8.2(2)	This command was introduced.
9.1(3)	A new type of Smart Call Home message has been added to include the output of the **show cluster history** command and **show cluster info** command.

Examples

The following is sample output from the **cluster exec show running-config call-home** command:

```
hostname# cluster exec show running-config call-home
A(LOCAL):************************************************************
service call-home
call-home
 contact-email-addr test@yahoo.com
 mail-server 10.105.206.139 priority 5
 profile CiscoTAC-1
  no active
  destination address http https://tools.cisco.com/its/service/oddce/services/DDCEService
  destination address email callhome@cisco.com
  destination transport-method http
  subscribe-to-alert-group diagnostic
  subscribe-to-alert-group environment
  subscribe-to-alert-group inventory periodic monthly 5
  subscribe-to-alert-group configuration periodic monthly 5
  subscribe-to-alert-group telemetry periodic daily
 profile test
  destination address email user2@mail.cisco.com
  destination transport-method email
  subscribe-to-alert-group configuration periodic daily
```

```
B:********************************************************************
service call-home
call-home
 contact-email-addr test@yahoo.com
 mail-server 10.105.206.139 priority 5
 profile CiscoTAC-1
  no active
  destination address http https://tools.cisco.com/its/service/oddce/services/DDCEService
  destination address email callhome@cisco.com
  destination transport-method http
  subscribe-to-alert-group diagnostic
  subscribe-to-alert-group environment
  subscribe-to-alert-group inventory periodic monthly 24
  subscribe-to-alert-group configuration periodic monthly 24
  subscribe-to-alert-group telemetry periodic daily
 profile test
  destination address email user2@mail.cisco.com
  destination transport-method email
  subscribe-to-alert-group configuration periodic daily


C:********************************************************************
service call-home
call-home
 contact-email-addr test@yahoo.com
 mail-server 10.105.206.139 priority 5
 profile CiscoTAC-1
  no active
  destination address http https://tools.cisco.com/its/service/oddce/services/DDCEService
  destination address email callhome@cisco.com
  destination transport-method http
  subscribe-to-alert-group diagnostic
  subscribe-to-alert-group environment
  subscribe-to-alert-group inventory periodic monthly 1
  subscribe-to-alert-group configuration periodic monthly 1
  subscribe-to-alert-group telemetry periodic daily
 profile test
  destination address email user2@mail.cisco.com
  destination transport-method email
  subscribe-to-alert-group configuration periodic daily


D:********************************************************************
service call-home
call-home
 contact-email-addr test@yahoo.com
 mail-server 10.105.206.139 priority 5
 profile CiscoTAC-1
  no active
  destination address http https://tools.cisco.com/its/service/oddce/services/DDCEService
  destination address email callhome@cisco.com
  destination transport-method http
  subscribe-to-alert-group diagnostic
  subscribe-to-alert-group environment
  subscribe-to-alert-group inventory periodic monthly 5
  subscribe-to-alert-group configuration periodic monthly 5
  subscribe-to-alert-group telemetry periodic daily
 profile test
  destination address email user2@mail.cisco.com
  destination transport-method email
  subscribe-to-alert-group configuration periodic daily
```

Related Commands

Command	Description
call-home	Enters call home configuration mode.
call-home send alert-group	Sends a specific alert group message.
service call-home	Enables or disables Call Home.

show running-config class

To show the resource class configuration, use the **show running-config class** command in privileged EXEC mode.

show running-config class

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	—	—	•

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following is sample output from the **show running-config class** command:

```
hostname# show running-config class

class default
  limit-resource All 0
  limit-resource Mac-addresses 65535
  limit-resource ASDM 5
  limit-resource SSH 5
  limit-resource Telnet 5
```

Related Commands

Command	Description
class	Configures a resource class.
clear configure class	Clears the class configuration.
context	Configures a security context.
limit-resource	Sets the resource limit for a class.
member	Assigns a context to a resource class.

show running-config class-map

To display the information about the class map configuration, use the **show running-config class-map** command in privileged EXEC mode.

show running-config [**all**] **class-map** [*class_map_name* | **type** {**management** | **regex** | **inspect** [*protocol*]}]

Syntax Description

all	(Optional) Shows all commands, including the commands you have not changed from the default.
class_map_name	(Optional) Shows the running configuration for a class map name.
inspect	(Optional) Shows inspection class maps.
management	(Optional) Shows management class maps.
protocol	(Optional) Specifies the type of application map you want to show. Available types include: • **dns** • **ftp** • **h323** • **http** • **im** • **p2p-donkey** • **sip**
regex	(Optional) Shows regular expression class maps.
type	(Optional) Specifies the type of class map you want to show. To show Layer 3/4 class maps, to not specify the type.

Defaults

The **class-map class-default** command, which contains a single **match any** command is the default class map.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	Added keyword **running-config**.

Examples

The following is sample output from the **show running-config class-map** command:

```
hostname# show running-config class-map
class-map tcp-port
  match port tcp eq ftp
hostname#
```

Related Commands

Command	Description
class-map	Applies a traffic class to an interface.
clear configure class-map	Removes all of the traffic map definitions.

show running-config client-update

To display global client-update configuration information, use the **show running-config client-update** command in global configuration mode or in tunnel-group ipsec-attributes configuration mode.

show running-config client-update

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	—	—	•
Tunnel-group ipsec-attributes configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	Added tunnel-group ipsec-attributes configuration mode.

Usage Guidelines

Use this command to display global client-update configuration information.

Examples

This example shows a **show running-config client-update** command in global configuration mode and its output for a configuration with client-update enabled:

```
hostname(config)# show running-config client-update
hostname(config)# client-update enable
```

Related Commands

Command	Description
clear configure client-update	Clears the entire client-update configuration.
client-update	Configures client-update.

show running-config clock

To show the clock configuration in the running configuration, use the **show running-config clock** command in privileged EXEC mode.

show running-config [**all**] **clock**

Syntax Description

all	(Optional) Shows all **clock** commands, including the commands you have not changed from the default.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **all** keyword also displays the exact day and time for the **clock summer-time** command, as well as the default setting for the offset, if you did not originally set it.

Examples

The following is sample output from the **show running-config clock** command. Only the **clock summer-time** command was set.

```
hostname# show running-config clock
clock summer-time EDT recurring
```

The following is sample output from the **show running-config all clock** command. The default setting for the unconfigured **clock timezone** command displays, and the detailed information for the **clock summer-time** command displays.

```
hostname# show running-config all clock
clock timezone UTC 0
clock summer-time EDT recurring 1 Sun Apr 2:00 last Sun Oct 2:00 60
```

Related Commands

Command	Description
clock set	Manually sets the clock on the ASA.

Command	Description
clock summer-time	Sets the date range to show daylight saving time.
clock timezone	Sets the time zone.

show running-config cluster

To show the cluster configuration, use the **show running-config cluster** command in privileged EXEC mode.

show running-config [**all**] **cluster**

Syntax Description

all	(Optional) Shows the running configuration, including default configuration values.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

Use the **clear configure cluster** command to clear the cluster configuration.

Examples

The following is sample output from the **show running-config cluster** command:

```
hostname(config)# show running-config cluster
cluster group cluster1
 local-unit asa1
 cluster-interface Port-channel2 ip 10.10.10.1 255.255.255.0
 priority 2
 health-check holdtime 0.9
 clacp system-mac auto system-priority 5
```

Related Commands

Command	Description
clacp system-mac	When using spanned EtherChannels, the ASA uses cLACP to negotiate the EtherChannel with the neighbor switch.
clear configure cluster	Clears the cluster configuration.
cluster group	Names the cluster and enters cluster configuration mode.
cluster-interface	Specifies the cluster control link interface.

Command	Description
cluster interface-mode	Sets the cluster interface mode.
conn-rebalance	Enables connection rebalancing.
console-replicate	Enables console replication from slave units to the master unit.
enable (cluster group)	Enables clustering.
health-check	Enables the cluster health check feature, which includes unit health monitoring and interface health monitoring.
key	Sets an authentication key for control traffic on the cluster control link.
local-unit	Names the cluster member.
mtu cluster-interface	Specifies the maximum transmission unit for the cluster control link interface.
priority (cluster group)	Sets the priority of this unit for master unit elections.

show running-config command-alias

To display the command aliases that are configured, use the **show running-config command-alias** command in privileged EXEC mode.

show running-config [**all**] **command-alias**

Syntax Description

all	(Optional) Displays all command aliases configured, including defaults.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

If you do not enter the **all** keyword, only non-default command aliases appear.

Examples

The following is sample output from the **show running-config all command-alias** command, which displays all command aliases that are configured on the ASA, *including* defaults:

```
hostname# show running-config all command-alias
command-alias exec h help
command-alias exec lo logout
command-alias exec p ping
command-alias exec s show
command-alias exec save copy running-config startup-config
```

The following is sample output from the **show running-config all command-alias** command, which displays all command aliases that are configured on the ASA, *excluding* defaults:

```
hostname# show running-config command-alias
command-alias exec save copy running-config startup-config
hostname#
```

Related Commands

Command	Description
command-alias	Creates a command alias.
clear configure command-alias	Deletes all non-default command aliases.

show running-config compression

To display the compression configuration in the running configuration, use the **show running-config compression** command from privileged EXEC mode:

show running-config compression

Defaults

There is no default behavior for this command.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Examples

The following example shows the compression configuration within the running configuration:

```
hostname# show running-config compression
compression svc http-comp
```

Related Commands

Command	Description
compression	Enables compression for all SVC, WebVPN, and Port Forwarding connections.

show running-config console timeout

To display the console connection timeout value, use the **show running-config console timeout** command in privileged EXEC mode.

show running-config console timeout

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show running-config console timeout** command:

```
hostname# show running-config console timeout
console timeout 0
```

Related Commands

Command	Description
console timeout	Sets the idle timeout for a console connection to the ASA.
clear configure console	Resets the console connection settings to defaults.

show running-config context

To show the context configuration in the system execution space, use the **show running-config context** command in privileged EXEC mode.

show running-config [**all**] **context**

Syntax Description

all	(Optional) Shows all commands, including the commands you have not changed from the default. If you use the **mac-address auto** command, then you can view the assigned MAC addresses using the **all** keyword.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.
8.0(5)/8.2(2)	When using the **all** keyword, you can view assigned MAC addresses to shared interfaces when you configure the **mac-address auto** command.

Usage Guidelines

If you use the **mac-address auto** command to generate unique MAC addresses for shared interfaces, the **all** option is required to view the assigned MAC addresses. Although the **mac-address auto** command is user-configurable in global configuration mode only, the **mac-address auto** command appears as a read-only entry in the configuration for each context along with the assigned MAC address. Only shared interfaces that are configured with a **nameif** command within the context have a MAC address assigned.

Note If you manually assign a MAC address to an interface, but also have auto-generation enabled, the auto-generated address continues to show in the configuration even though the manual MAC address is the one that is in use. If you later remove the manual MAC address, the auto-generated one shown will be used.

Examples

The following output from the **show running-config all context admin** command shows the primary and standby MAC address assigned to the Management0/0 interface:

```
hostname# show running-config all context admin
```

```
context admin
  allocate-interface Management0/0
  mac-address auto Management0/0 a24d.0000.1440 a24d.0000.1441
  config-url disk0:/admin.cfg
```

The following output from the **show running-config all context** command shows all the MAC addresses (primary and standby) for all context interfaces. Note that because the GigabitEthernet0/0 and GigabitEthernet0/1 main interfaces are not configured with a **nameif** command inside the contexts, no MAC addresses have been generated for them.

```
hostname# show running-config all context

admin-context admin
context admin
  allocate-interface Management0/0
  mac-address auto Management0/0 a2d2.0400.125a a2d2.0400.125b
  config-url disk0:/admin.cfg
!

context CTX1
  allocate-interface GigabitEthernet0/0
  allocate-interface GigabitEthernet0/0.1-GigabitEthernet0/0.5
  mac-address auto GigabitEthernet0/0.1 a2d2.0400.11bc a2d2.0400.11bd
  mac-address auto GigabitEthernet0/0.2 a2d2.0400.11c0 a2d2.0400.11c1
  mac-address auto GigabitEthernet0/0.3 a2d2.0400.11c4 a2d2.0400.11c5
  mac-address auto GigabitEthernet0/0.4 a2d2.0400.11c8 a2d2.0400.11c9
  mac-address auto GigabitEthernet0/0.5 a2d2.0400.11cc a2d2.0400.11cd
  allocate-interface GigabitEthernet0/1
  allocate-interface GigabitEthernet0/1.1-GigabitEthernet0/1.3
  mac-address auto GigabitEthernet0/1.1 a2d2.0400.120c a2d2.0400.120d
  mac-address auto GigabitEthernet0/1.2 a2d2.0400.1210 a2d2.0400.1211
  mac-address auto GigabitEthernet0/1.3 a2d2.0400.1214 a2d2.0400.1215
  config-url disk0:/CTX1.cfg
!

context CTX2
  allocate-interface GigabitEthernet0/0
  allocate-interface GigabitEthernet0/0.1-GigabitEthernet0/0.5
  mac-address auto GigabitEthernet0/0.1 a2d2.0400.11ba a2d2.0400.11bb
  mac-address auto GigabitEthernet0/0.2 a2d2.0400.11be a2d2.0400.11bf
  mac-address auto GigabitEthernet0/0.3 a2d2.0400.11c2 a2d2.0400.11c3
  mac-address auto GigabitEthernet0/0.4 a2d2.0400.11c6 a2d2.0400.11c7
  mac-address auto GigabitEthernet0/0.5 a2d2.0400.11ca a2d2.0400.11cb
  allocate-interface GigabitEthernet0/1
  allocate-interface GigabitEthernet0/1.1-GigabitEthernet0/1.3
  mac-address auto GigabitEthernet0/1.1 a2d2.0400.120a a2d2.0400.120b
  mac-address auto GigabitEthernet0/1.2 a2d2.0400.120e a2d2.0400.120f
  mac-address auto GigabitEthernet0/1.3 a2d2.0400.1212 a2d2.0400.1213
  config-url disk0:/CTX2.cfg
!
```

Related Commands

Command	Description
admin-context	Sets the admin context.
allocate-interface	Assigns interfaces to a context.
changeto	Changes between contexts or the system execution space.
config-url	Specifies the location of the context configuration.

Command	Description
context	Creates a security context in the system configuration and enters context configuration mode.
mac-address auto	Automatically generates unique MAC addresses for shared interfaces.

show running-config crypto

To display the entire crypto configuration including IPsec, crypto maps, dynamic crypto maps, and ISAKMP, use the **show running-config crypto** command in global configuration or privileged EXEC mode.

show running-config crypto

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.2(3)	Added **crypto engine large-mod-accel** command.

Examples

The following is sample output from the **show running-config crypto** command:

```
hostname# show running-config crypto
crypto ipsec transform-set example1 esp-aes esp-sha-hmac
crypto ipsec security-association lifetime seconds 28800
crypto ipsec security-association lifetime kilobytes 4608000
crypto engine large-mod-accel
crypto map mymap 10 match address L2L
crypto map mymap 10 set peer 75.5.33.1
crypto map mymap 10 set transform-set myset
crypto map mymap 10 set security-association lifetime seconds 28800
crypto map mymap 10 set security-association lifetime kilobytes 4608000
crypto map mymap interface outside
crypto isakmp enable outside
crypto isakmp policy 10
 authentication pre-share
 encryption aes
 hash sha
 group 2
 lifetime 86400
```

Related Commands

Command	Description
clear configure isakmp	Clears all the ISAKMP configuration.
clear configure isakmp policy	Clears all ISAKMP policy configuration.
clear isakmp sa	Clears the IKE runtime SA database.
isakmp enable	Enables ISAKMP negotiation on the interface on which the IPsec peer communicates with the ASA.
show isakmp sa	Displays IKE runtime SA database with additional information.

show running-config crypto dynamic-map

To view a dynamic crypto map, use the **show running-config crypto dynamic-map** command in global configuration or privileged EXEC mode.

show running-config crypto dynamic-map

Syntax Description

This command has no arguments or keywords.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Examples

The following example entered in global configuration mode, displays all configuration information about crypto dynamic maps:

```
hostname(config)# show running-config crypto dynamic-map

Crypto Map Template "dyn1" 10

        access-list 152 permit ip host 172.21.114.67 any
        Current peer: 0.0.0.0
        Security association lifetime: 4608000 kilobytes/120 seconds
        PFS (Y/N): N
        Transform sets={ tauth, t1, }
```

Related Commands

Command	Description
clear configure isakmp	Clears all the ISAKMP configuration.
clear configure isakmp policy	Clears all ISAKMP policy configuration.
clear isakmp sa	Clears the IKE runtime SA database.

Command	Description
isakmp enable	Enables ISAKMP negotiation on the interface on which the IPsec peer communicates with the ASA.
show isakmp sa	Displays IKE runtime SA database with additional information.

show running-config crypto engine

To show if large modulus operations are switched to hardware, use the **crypto engine large-mod-accel** command in privileged EXEC mode.

show running-config crypto engine

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.2(3)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

This command is available only with the ASA models 5510, 5520, 5540, and 5550. If the CLI displays `crypto engine large-mod-accel` in response, the ASA is configured to run large modulus operations on the hardware instead of the software. The **crypto engine large-mod-accel** command specifies this switch.

If you enter this command and the CLI responds only by redisplaying the prompt, the ASA is configured to run large modulus operations on the software.

Example

The following example response to this command shows that large modulus operations are configured to run on hardware:

```
hostname# show running-config crypto engine
crypto engine large-mod-accel
```

Related Commands

Command	Description
crypto engine large-mod-accel	Switches large modulus operations from software to hardware.
clear configure crypto engine	Returns large modulus operations to software.

show running-config crypto ipsec

To display the complete IPsec configuration, use the **show running-config crypto ipsec** command in global configuration or privileged EXEC mode.

show running-config crypto ipsec

Syntax Description

This command has no default behavior or values.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Examples

The following example issued in global configuration mode, displays information about the IPsec configuration:

```
hostname(config)# show running-config crypto ipsec
crypto ipsec transform-set ttt esp-3des esp-md5-hmac
```

Related Commands

Command	Description
clear configure isakmp	Clears all the ISAKMP configuration.
clear configure isakmp policy	Clears all ISAKMP policy configuration.
clear isakmp sa	Clears the IKE runtime SA database.
isakmp enable	Enables ISAKMP negotiation on the interface on which the IPsec peer communicates with the ASA.
show isakmp sa	Displays IKE runtime SA database with additional information.

show running-config crypto isakmp

To display the complete ISAKMP configuration, use the **show running-config crypto isakmp** command in global configuration or privileged EXEC mode.

show running-config crypto isakmp

Syntax Description

This command has no default behavior or values.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	The **show running-config isakmp** command was introduced.
7.2(1)	This command was deprecated. The **show running-config crypto isakmp** command replaces it.
9.0(1)	Support for multiple context mode was added.

Examples

The following example issued in global configuration mode, displays information about the ISKAKMP configuration:

```
hostname(config)# show running-config crypto isakmp
crypto isakmp enable inside
crypto isakmp policy 1 authentication pre-share
crypto isakmp policy 1 encryption 3des
crypto isakmp policy 1 hash md5
crypto isakmp policy 1 group 2
crypto isakmp policy 1 lifetime 86400
hostname(config)#
```

Related Commands

Command	Description
clear configure crypto isakmp	Clears all the ISAKMP configuration.
clear configure crypto isakmp policy	Clears all ISAKMP policy configuration.
clear crypto isakmp sa	Clears the IKE runtime SA database.

Command	Description
crypto isakmp enable	Enables ISAKMP negotiation on the interface on which the IPsec peer communicates with the ASA.
show crypto isakmp sa	Displays IKE runtime SA database with additional information.

show running-config crypto map

To display all configuration for all crypto maps, use the **show running-config crypto map** command in global configuration or privileged EXEC mode.

show running-config crypto map

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Examples

The following example entered in privileged EXEC mode, displays all configuration information for all crypto maps:

```
hostname# show running-config crypto map
crypto map abc 1 match address xyz
crypto map abc 1 set peer 209.165.200.225
crypto map abc 1 set transform-set ttt
crypto map abc interface test
```

Related Commands

Command	Description
clear configure isakmp	Clears all the ISAKMP configuration.
clear configure isakmp policy	Clears all ISAKMP policy configuration.
clear isakmp sa	Clears the IKE runtime SA database.
isakmp enable	Enables ISAKMP negotiation on the interface on which the IPsec peer communicates with the ASA.
show isakmp sa	Displays IKE runtime SA database with additional information.

show running-config ctl-file

To show configured CTL file instances, use the **show running-config ctl-file** command in privileged EXEC mode.

show running-config [**all**] **ctl-file** [*ctl_name*]

Syntax Description

ctl_name	(Optional) Specifies the name of the CTL file instance.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
8.0(4)	The command was introduced.

Examples

The following example shows the use of the **show running-config ctl-file** command to show configured CTL file instances:

```
hostname# show running-config all ctl-file asa_ctl
```

Related Commands

Command	Description
ctl-file (global)	Specifies the CTL file to create for Phone Proxy configuration or the CTL file to parse from Flash memory.
ctl-file (phone-proxy)	Specifies the CTL file to use for Phone Proxy configuration.
phone-proxy	Configures the Phone Proxy instance.

show running-config cts

To display all currently configured Cisco TrustSec (CTS) commands, use the **show running-config cts** command in privileged EXEC mode.

show running-config [**all**] **cts** [**server-group**] [**sxp**]

Syntax Description

all	Shows all default CTS configuration values and the Security eXchange Protocol (SXP) configuration.
server-group	Shows the server group configuration.
sxp	Shows the SXP configuration.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Examples

The following is sample output of the **show running-config cts** command:

```
hostname# show running-config cts
cts server-group ise
cts sxp enable
cts sxp default password *****
cts sxp reconciliation period 10
cts sxp retry period 3
cts sxp connection peer 10.0.0.248 password default mode peer speaker
```

The following is sample output of the **show running-config all cts** command:

```
hostname# show running-config all cts

cts server-group ctsgroup

no cts sxp enable
no cts sxp default password
cts sxp retry period 120
cts sxp reconcile period 120
```

Related Commands

Command	Description
show cts	Shows the SXP connections for the running configuration.
show cts environment	Shows the health and status of the environment data refresh operation.

CHAPTER 55

show running-config ddns through show running-config isakmp Commands

show running-config ddns

To display the DDNS update methods of the running configuration, use the **show running-config ddns** command in privileged EXEC mode.

show running-config [**all**] **ddns** [**update**]

Syntax Description

all	(Optional) Shows the running configuration, including default configuration values.
update	(Optional) Specifies that DDNS update method information be displayed.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example displays the DDNS methods in the running configuration with test in the name:

```
hostname# show running-config all ddns | grep test
ddns update method test
```

Related Commands

Command	Description
ddns (DDNS-update-method mode)	Specifies a DDNS update method type for a created DDNS method.
ddns update (interface config mode)	Associates an ASA interface with a DDNS update method or a DDNS update hostname.
ddns update method (global config mode)	Creates a method for dynamically updating DNS resource records.
show ddns update interface	Displays the interfaces associated with each configured DDNS method.
show ddns update method	Displays the type and interval for each configured DDNS method. a DHCP server to perform DDNS updates.

show running-config dhcp-client

To display the DHCP client update parameters in the running configuration, use the **show running-config dhcp-client** command in privileged EXEC mode.

show running-config [**all**] **dhcp-client**

Syntax Description

all	(Optional) Shows the running configuration including default configuration values.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example displays DHCP client update parameters in the running configuration that specify updates for both A and PTR records:

```
hostname# show running-config all dhcp-client | grep both
dhcp-client update dns server both
```

Related Commands

Command	Description
dhcp-client update dns	Configures the update parameters that the DHCP client passes to the DHCP server.
dhcpd update dns	Enables a DHCP server to perform DDNS updates.
clear configure dhcp-client	Clears the DHCP client configuration.

show running-config dhcpd

To show the DHCP configuration, use the **show running-config dhcpd** command in privileged EXEC or global configuration mode.

show running-config dhcpd

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was changed from the **show dhcpd** command to the **show running-config dhcpd** command.

Usage Guidelines

The **show running-config dhcpd** command displays the DHCP commands entered in the running configuration. To see DHCP binding, state, and statistical information, use the **show dhcpd** command.

Examples

The following is sample output from the **show running-config dhcpd** command:

```
hostname# show running-config dhcpd

dhcpd address 10.0.1.100-10.0.1.108 inside
dhcpd lease 3600
dhcpd ping_timeout 750
dhcpd dns 209.165.201.2 209.165.202.129
dhcpd enable inside
```

Related Commands

Command	Description
clear configure dhcpd	Removes all DHCP server settings.
debug dhcpd	Displays debug information for the DHCP server.
show dhcpd	Displays DHCP binding, statistic, or state information.

show running-config dhcprelay

To view the current DHCP relay agent configuration, use the **show running-config dhcprelay** command in privileged EXEC mode.

show running-config dhcprelay [**global | interface** [*ifc*]]

Syntax Description

global	Shows the global DHCP relay agent configuration.
ifc	Shows the DHCP relay agent configuration on a specified interface.
interface	Shows all of the DHCP relay agent configurations on all interfaces.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.1.(2)	The **global**, **interface**, and *ifc* options were added.

Usage Guidelines

The **show running-config dhcprelay** command displays the current DHCP relay agent configuration. To show DHCP relay agent packet statistics, use the **show dhcprelay statistics** command.

The vlan option for Catalyst 6500 VLANs is available when you show the DHCP relay configuration on a per-interface basis. You can show the DHCP relay configuration on a per-interface basis by including the interface name (*ifc* option).

Examples

The following is sample output from the **show running-config dhcprelay** command:

```
hostname(config)# show running-config dhcprelay

dhcprelay server 10.1.1.1
dhcprelay enable inside
dhcprelay timeout 90
```

The following is sample output from the **show running-config dhcprelay global** command:

```
hostname(config)# show running-config dhcprelay global
dhcprelay enable vlan391
dhcp timeout 60
```

```
dhcprelay information trust-all
```

The following is sample output from the **show running-config dhcprelay interface** command:

```
hostname(config)# show running-config dhcprelay interface

interface vlan391
nameif vlan391
dhcprelay server 198.16.48.1

interface vlan392
nameif vlan392
dhcprelay information trusted

interface vlan393
nameif vlan393
dhcprelay serv er 198.16.52.3
```

The following is sample output from the **show running-config dhcprelay interface** *ifc* command:

```
hostname(config)# show running-config dhcprelay interface vlan392

interface vlan392
nameif vlan392
dhcprelay information trusted
```

Related Commands

Command	Description
clear configure dhcprelay	Removes all DHCP relay agent settings.
clear dhcprelay statistics	Clears the DHCP relay agent statistic counters.
debug dhcprelay	Displays debugging information for the DHCP relay agent.
show dhcprelay statistics	Displays DHCP relay agent statistics.

show running-config dns

To show the DNS configuration in the running configuration, use the **show running-config dns** command in privileged EXEC mode.

show running-config dns

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show running-config dns** command:

```
hostname# show running-config dns
dns domain-lookup inside
dns name-server
dns retries 2
dns timeout 15
dns name-server 10.1.1.1
```

Related Commands

Command	Description
dns domain-lookup	Enables the ASA to perform a name lookup.
dns name-server	Configures a DNS server address.
dns retries	Specifies the number of times to retry the list of DNS servers when the ASA does not receive a response.
dns timeout	Specifies the amount of time to wait before trying the next DNS server.
show dns-hosts	Shows the DNS cache.

show running-config dns server-group

To show the DNS configuration in the running configuration, use the **show running-config dns** command in privileged EXEC mode.

show [**all**] **running-config dns server-group** [*name*]

Syntax Description

all	Displays the default and explicitly configured configuration information for one or all dns-server-groups.
name	Specifies the name of the dns server group for which you want to show the configuration information.

Defaults

If you omit the DNS server group name, this command displays all the existing DNS server group configurations.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.1 (1)	This command was introduced.

Examples

The following is sample output from the **show running-config dns server-group** command:

```
hostname# show running-config dns server-group
dns domain-lookup inside
dns server-group DefaultDNS
 name-server 90.1.1.22
 domain-name frqa.cisco.com
dns server-group writers1
 retries 10
 timeout 3
 name-server 10.86.194.61
 domain-name doc-group
hostname#
```

Related Commands

Command	Description
clear configure dns	Removes all DNS commands.
dns server-group	Enters DNS server group mode, in which you can configure a DNS server group.

show running-config domain-name

To show the domain name configuration in the running configuration, use the **show running-config domain-name** command in privileged EXEC mode.

show running-config domain-name

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was changed from **show domain-name**.

Examples

The following is sample output from the **show running-config domain-name** command:

```
hostname# show running-config domain-name
example.com
```

Related Commands

Command	Description
domain-name	Sets the default domain name.
hostname	Sets the ASA hostname.

show running-config dynamic-access-policy-record

To display the running configuration for all DAP records, or for the named DAP record, use the **show running-config dynamic-access-policy-record** command in privileged EXEC mode.

show running-config dynamic-access-policy-record [*name*]

Syntax DescriptionE

name	Specifies the name of the DAP record. The name can be up to 64 characters long and cannot contain spaces.

Defaults

All attributes display.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC mode	•	•	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Examples

This example shows the use of the **show running-config dynamic-access-policy-record** command to display statistics for the DAP record named Finance:

```
hostname(config)#show running-config dynamic-access-policy-record Finance
dynamic-access-policy-record Finance
description value "Finance users from trusted device"
network-acl FinanceFirewallAcl
user-message "Limit access to the Finance network"
priority 2
webvpn
  appl-acl FinanceWebvpnAcl
  url-list value FinanceLinks,StockLinks
  port-forward enable FinanceApps
  file-browsing enable
  file-entry enablehostname#
```

Related Commands

Command	Description
clear config dynamic-access-policy-record [*name*]	Removes all DAP records or the named DAP record.
dynamic-access-policy-record	Creates a DAP record.

show running-config dynamic-filter

To show the Botnet Traffic Filter configuration, use the **show running-config dynamic-filter** command in privileged EXEC mode.

show running-config [**all**] **dynamic-filter**

Syntax Description

all	(Optional) Shows the running configuration, including default configuration values.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
8.2(1)	This command was introduced.

Examples

The following is sample output from the **show running-config dynamic-filter** command:

```
hostname# show running-config dynamic-filter

dynamic-filter updater-client enable
dynamic-filter use-database
dynamic-filter enable interface outside
dynamic-filter enable interface inside classify-list test_l4tm
dynamic-filter enable interface publicl4tm
dynamic-filter enable interface publictftp
dynamic-filter enable interface mgmt
dynamic-filter whitelist
   name www.example.com
dynamic-filter blacklist
   name cisco.invalid
```

Related Commands

Command	Description
address	Adds an IP address to the blacklist or whitelist.
clear configure dynamic-filter	Clears the running Botnet Traffic Filter configuration.
clear dynamic-filter dns-snoop	Clears Botnet Traffic Filter DNS snooping data.

Command	Description
clear dynamic-filter reports	Clears Botnet Traffic filter report data.
clear dynamic-filter statistics	Clears Botnet Traffic filter statistics.
dns domain-lookup	Enables the ASA to send DNS requests to a DNS server to perform a name lookup for supported commands.
dns server-group	Identifies a DNS server for the ASA.
dynamic-filter ambiguous-is-black	Treats greylisted traffic as blacklisted traffic for action purposes.
dynamic-filter blacklist	Edits the Botnet Traffic Filter blacklist.
dynamic-filter database fetch	Manually retrieves the Botnet Traffic Filter dynamic database.
dynamic-filter database find	Searches the dynamic database for a domain name or IP address.
dynamic-filter database purge	Manually deletes the Botnet Traffic Filter dynamic database.
dynamic-filter drop blacklist	Automatically drops blacklisted traffic.
dynamic-filter enable	Enables the Botnet Traffic Filter for a class of traffic or for all traffic if you do not specify an access list.
dynamic-filter updater-client enable	Enables downloading of the dynamic database.
dynamic-filter use-database	Enables use of the dynamic database.
dynamic-filter whitelist	Edits the Botnet Traffic Filter whitelist.
inspect dns dynamic-filter-snoop	Enables DNS inspection with Botnet Traffic Filter snooping.
name	Adds a name to the blacklist or whitelist.
show asp table dynamic-filter	Shows the Botnet Traffic Filter rules that are installed in the accelerated security path.
show dynamic-filter data	Shows information about the dynamic database, including when the dynamic database was last downloaded, the version of the database, how many entries the database contains, and 10 sample entries.
show dynamic-filter dns-snoop	Shows the Botnet Traffic Filter DNS snooping summary, or with the **detail** keyword, the actual IP addresses and names.
show dynamic-filter reports	Generates reports of the top 10 botnet sites, ports, and infected hosts.
show dynamic-filter statistics	Shows how many connections were monitored with the Botnet Traffic Filter, and how many of those connections match the whitelist, blacklist, and greylist.
show dynamic-filter updater-client	Shows information about the updater server, including the server IP address, the next time the ASA will connect with the server, and the database version last installed.

show running-config enable

To show the encrypted enable passwords, use the **show running-config enable** command in privileged EXEC mode.

show running-config enable

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was changed from the **show enable** command.

Usage Guidelines

The password is saved to the configuration in encrypted form, so you cannot view the original password after you enter it. The password displays with the **encrypted** keyword to indicate that the password is encrypted.

Examples

The following is sample output from the **show running-config enable** command:

```
hostname# show running-config enable
enable password 2AfK9Kjr3BE2/J2r level 10 encrypted
enable password 8Ry2YjIyt7RRXU24 encrypted
```

Related Commands

Command	Description
disable	Exits privileged EXEC mode.
enable	Enters privileged EXEC mode.
enable password	Sets the enable password.

show running-config established

To display the allowed inbound connections that are based on established connections, use the **show running-config established** command in privileged EXEC mode.

show running-config established

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	The keyword **running-config** was added.

Usage Guidelines

This command has no usage guidelines.

Examples

This example shows how to display inbound connections that are based on established connections:

```
hostname# show running-config established
```

Related Commands

Command	Description
established	Permits return connections on ports that are based on an established connection.
clear configure established	Removes all established commands.

show running-config failover

To display the **failover** commands in the configuration, use the **show running-config failover** command in privileged EXEC mode.

show running-config [**all**] **failover**

Syntax Description

all	(Optional) Shows all failover commands, including the commands you have not changed from the default.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **show running-config failover** command displays the **failover** commands in the running configuration. It does not display the **monitor-interface** or **join-failover-group** commands.

Examples

The following example shows the default failover configuration before failover has been configured:

```
hostname# show running-config all failover
no failover
failover lan unit secondary
failover polltime unit 15 holdtime 45
failover polltime interface 15
failover interface policy 1
```

Related Commands

Command	Description
show failover	Displays failover state and statistics.

show running-config filter

To show the filtering configuration, use the **show running-config filter** command in privileged EXEC mode.

show running-config filter

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **show running-config filter** command displays the filtering configuration for the ASA.

Examples

The following is sample output from the **show running-config filter** command, and shows the filtering configuration for the ASA:

```
hostname# show running-config filter
!
filter activex 80 10.86.194.170 255.255.255.255 10.1.1.0 255.255.255.224
!
```

This example shows ActiveX filtering is enabled on port80 for the address 10.86.194.170.

Related Commands

Commands	Description
filter activex	Removes ActiveX objects from HTTP traffic passing through the ASA.
filter ftp	Identifies the FTP traffic to be filtered by a URL filtering server.
filter https	Identifies the HTTPS traffic to be filtered by a Websense server.
filter java	Removes Java applets from HTTP traffic passing through the ASA.
filter url	Directs traffic to a URL filtering server.

show running-config fips

To display the FIPS configuration that is running on the security appliance, use the **show running-config fips** command.

show running-config fips

Syntax Description

fips	Shows FIPS-2 compliance information

Defaults

This command has no default settings.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(4)	This command was introduced.

Usage Guidelines

The **show running-config fips** command allows you to display the current running fips configuration. You use the **running-config** keyword only in the **show running-config fips** command. You cannot use this keyword with no or clear, or as a standalone command as it is not supported. When you enter the **?**, **no ?**, or **clear ?** keywords, a **running-config** keyword is not listed in the command list.

Examples

```
hostname(config)# show running-config fips
```

Related Commands

Command	Description
clear configure fips	Clears the system or module FIPS configuration information stored in NVRAM.
crashinfo console disable	Disables the reading, writing and configuration of crash write info to flash.
fips enable	Enables or disablea policy-checking to enforce FIPS compliance on the system or module.
show crashinfo console	Reads, writes, and configures crash write to flash.

show running-config flow-export

To display the configured NetFlow commands, use the **show running-config flow-export** command in privileged EXEC mode.

show running-config flow-export [**active** | **delay** | **destination** | **template**]

Syntax Description

active	Shows the flow-export active configuration.
delay	Shows the flow-export delay configuration.
destination	Shows the flow-export destination configuration.
template	Shows the flow-export template configuration.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.1(2)	This command was introduced.
8.4(5)	The **active** keyword was added.

Usage Guidelines

The additional keywords are provided to filter the commands that are to be displayed.

Examples

The following is sample output from the **show running-config flow-export active** command:

```
hostname# show running-config flow-export active
flow-export active refresh-interval 2
```

The following is sample output from the **show running-config flow-export delay** command:

```
hostname(config)# show running-config flow-export delay
flow-export delay flow-create 30
```

The following is sample output from the **show running-config flow-export destination** command:

```
hostname(config)# show running-config flow-export destination
flow-export destination inside 192.68.10.70 9996
```

The following is sample output from the **show running-config flow-export template** command:

```
hostname(config)# show running-config flow-export template
flow-export template timeout-rate 1
```

Related Commands

Command	Description
clear configure flow-export	Removes all the NetFlow flow-export configurations.
flow-export active refresh-interval	Changes the time interval at which periodic flow-update events are sent to the NetFlow collector.
flow-export delay flow-create	Delays export of the flow-create event.
flow-export destination	Configures a collector to which NetFlow packets are sent.
flow-export template timeout-rate	Controls the interval at which the template information is sent to NetFlow collectors.

show running-config fragment

To display the current configuration of the fragment databases, use the **show running-config fragment** command in privileged EXEC mode.

show running-config fragment [*interface*]

Syntax Description

interface	(Optional) Specifies the ASA interface.

Defaults

If an interface is not specified, the command applies to all interfaces.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **show running-config fragment** command displays the current configuration of the fragment databases. If you specify an interface name, only information for the database residing at the specified interface displays. If you do not specify an interface name, the command applies to all interfaces.

Use the **show running-config fragment** command to display this information:

- Size—Maximum number of packets set by the **size** keyword. This value is the maximum number of fragments that are allowed on the interface.
- Chain—Maximum number of fragments for a single packet set by the **chain** keyword.
- Timeout—Maximum number of seconds set by the **timeout** keyword. This is the maximum number of seconds to wait for an entire fragmented packet to arrive. The timer starts after the first fragment of a packet arrives. If all fragments of the packet do not arrive by the number of seconds specified, all fragments of the packet that were already received will be discarded.

Examples

The following example shows how to display the states of the fragment databases on all interfaces:

```
hostname# show running-config fragment
fragment size 200 inside
fragment chain 24 inside
fragment timeout 5 inside
fragment size 200 outside1
fragment chain 24 outside1
fragment timeout 5 outside1
```

```
fragment size 200 outside2
fragment chain 24 outside2
fragment timeout 5 outside2
fragment size 200 outside3
fragment chain 24 outside3
fragment timeout 5 outside3
```

The following example shows how to display the states of the fragment databases on interfaces that start with the name “outside”:

Note In this example, the interfaces named “outside1”, “outside2”, and “outside3” display.

```
hostname# show running-config fragment outside
fragment size 200 outside1
fragment chain 24 outside1
fragment timeout 5 outside1
fragment size 200 outside2
fragment chain 24 outside2
fragment timeout 5 outside2
fragment size 200 outside3
fragment chain 24 outside3
fragment timeout 5 outside3
```

The following example shows how to display the states of the fragment databases on the interfaces named “outside1” only:

```
hostname# show running-config fragment outside1
fragment size 200 outside1
fragment chain 24 outside1
fragment timeout 5 outside1
```

Related Commands

Command	Description
clear configure fragment	Resets all the IP fragment reassembly configurations to defaults.
clear fragment	Clears the operational data of the IP fragment reassembly module.
fragment	Provides additional management of packet fragmentation and improves compatibility with NFS.
show fragment	Displays the operational data of the IP fragment reassembly module.

show running-config ftp mode

To show the client mode configured for FTP, use the **show running-config ftp mode** command in privileged EXEC mode.

show running-config ftp mode

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **show running-config ftp mode** command displays the client mode that is used by the ASA when accessing an FTP server.

Examples

The following is sample output from the **show running-config ftp-mode** command:

```
hostname# show running-config ftp-mode
!
ftp-mode passive
!
```

Related Commands

Commands	Description
copy	Uploads or downloads image files or configuration files to or from an FTP server.
debug ftp client	Displays detailed information about FTP client activity.
ftp mode passive	Sets the FTP client mode used by the ASA when accessing an FTP server.

show running-config global

To display the **global** commands in the configuration, use the **show running-config global** command in privileged EXEC mode.

show running-config global

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	Added keyword **running-config**.

Examples

The following is sample output from the **show running-config global** command:

```
hostname# show running-config global
global (outside1) 10 interface
```

Related Commands

Command	Description
clear configure global	Removes **global** commands from the configuration.
global	Creates entries from a pool of global addresses.

show running-config group-delimiter

To display the current delimiter to be used when parsing group names from the user names that are received when tunnels are being negotiated, use the **show running-config group-delimiter** command in global configuration mode or in tunnel-group ipsec-attributes configuration mode.

show running-config group-delimiter

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	—	—	•
Tunnel-group ipsec-attributes configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	Added tunnel-group ipsec-attributes configuration mode.

Usage Guidelines

Use this command to display the currently configured group-delimiter.

Examples

This example shows a **show running-config group-delimiter** command and its output:

```
hostname(config)# show running-config group-delimiter
group-delimiter @
```

Related Commands

Command	Description
group-delimiter	Enables group-name parsing and specifies the delimiter to be used when parsing group names from the user names that are received when tunnels are being negotiated.

show running-config group-policy

To display the running configuration for a particular group policy, use the **show running-config group-policy** command in privileged EXEC mode and append the name of the group policy. To display the running configuration for all group policies, use this command without naming a specific group policy. To have either display include the default configuration, use the **all** keyword.

show running-config [all] group-policy [*name*]

Syntax Description

all	(Optional) Displays the running configuration including default values.
name	(Optional) Specifies the name of the group policy.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•	—	—
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to display the running configuration, including default values, for the group policy named FirstGroup:

```
hostname# show running-config all group-policy FirstGroup
```

Related Commands

Command	Description
group-policy	Creates, edits, or removes a group policy.
group-policy attributes	Enters group-policy attributes mode, which lets you configure AVPs for a specified group policy.
clear config group-policy	Removes the configuration for a particular group policy or for all group policies.

show running-config hpm

To display the hpm configuration, use the **show running-config hpm** command in privileged EXEC mode.

show running-config [all] hpm

Syntax Description

all	(Optional) Shows all commands, including the commands you have not changed from the default.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.3(1)	This command was introduced.

Examples

The following is sample output from the **show running-config hpm** command:

```
hostname# show running-config hpm
hpm topn enable
```

Related Commands

Command	Description
clear configure hpm	Clears the hpm configuration.
hpm topn enable	Enables top hosts reporting in ASDM.

show running-config http

To display the current set of configured http commands, use the **show running-config http** command in privileged EXEC mode.

show running-config http

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following sample output shows how to use the **show running-config http** command:

```
hostname# show running-config http
http server enabled
0.0.0.0 0.0.0.0 inside
```

Related Commands

Command	Description
clear http	Remove the HTTP configuration: disable the HTTP server and remove hosts that can access the HTTP server.
http	Specifies hosts that can access the HTTP server by IP address and subnet mask. Specifies the ASA interface through which the host accesses the HTTP server.
http authentication-certificate	Requires authentication via certificate from users who are establishing HTTPS connections to the ASA.
http redirect	Specifies that the ASA redirect HTTP connections to HTTPS.
http server enable	Enables the HTTP server.

show running-config icmp

To show the access rules configured for ICMP traffic, use the **show running-config icmp** command in privileged EXEC mode.

show running-config icmp *map_name*

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **show running-config icmp** command displays the access rules configured for ICMP traffic.

Examples

The following is sample output from the **show running-config icmp** command:

```
hostname# show running-config icmp
!
icmp permit host 172.16.2.15 echo-reply outside
icmp permit 172.22.1.0 255.255.0.0 echo-reply outside
icmp permit any unreachable outside
!
```

Related Commands

Commands	Description
clear configure icmp	Clears the ICMP configuration.
debug icmp	Enables the display of debug information for ICMP.
show icmp	Displays ICMP configuration.
timeout icmp	Configures the idle timeout for ICMP.

show running-config imap4s

To display the running configuration for IMAP4S, use the s**how running-config imap4s** command in privileged EXEC mode.

show running-config [all] imap4s

Syntax Description

all	(Optional) Displays the running configuration including default values.

Defaults

No default behavior or values.

Command History

Release	Modification
7.0(1)	This command was introduced.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—
Global configuration	•	—	•	—	—
Webvpn	•	—	•	—	—

Examples

The following is sample output from the **show running-config imap4s** command:

```
hostname# show running-config imap4s

imap4s
 server 10.160.105.2
 authentication-server-group KerbSvr
 authentication aaa

hostname# show running-config all imap4s

imap4s
 port 993
 server 10.160.105.2
 outstanding 20
 name-separator :
 server-separator @
 authentication-server-group KerbSvr
 no authorization-server-group
 no accounting-server-group
 no default-group-policy
 authentication aaa
```

Related Commands

Command	Description
clear configure imap4s	Removes the IMAP4S configuration.
imap4s	Creates or edits an IMAP4S e-mail proxy configuration.

show running-config interface

To show the interface configuration in the running configuration, use the s**how running-config interface** command in privileged EXEC mode.

show running-config [**all**] **interface** [*physical_interface*[**.***subinterface*] | *mapped_name* | *interface_name*]

Syntax Description

all	(Optional) Shows all **interface** commands, including the commands you have not changed from the default.
interface_name	(Optional) Identifies the interface name set with the **nameif** command.
mapped_name	(Optional) In multiple context mode, identifies the mapped name if it was assigned using the **allocate-interface** command.
physical_interface	(Optional) Identifies the interface ID, such as **gigabitethernet0/1**. See the **interface** command for accepted values.
subinterface	(Optional) Identifies an integer between 1 and 4294967293 designating a logical subinterface.

Defaults

If you do not specify an interface, this command shows the configuration for all interfaces.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You cannot use the interface name in the system execution space, because the **nameif** command is only available within a context. Similarly, if you mapped the interface ID to a mapped name using the **allocate-interface** command, you can only use the mapped name in a context.

Examples

The following is sample output from the **show running-config interface** command. The following example shows the running configuration for all interfaces. The GigabitEthernet0/2 and 0/3 interfaces have not been configured yet, and show the default configuration. The Management0/0 interface also shows the default settings.

```
hostname# show running-config interface
!
interface GigabitEthernet0/0
```

```
 no shutdown
 nameif inside
 security-level 100
 ip address 10.86.194.60 255.255.254.0
 webvpn enable
!
interface GigabitEthernet0/1
 no shutdown
 nameif test
 security-level 0
 ip address 10.10.4.200 255.255.0.0
!
interface GigabitEthernet0/1.1
 vlan 101
 no shutdown
 nameif dmz
 security-level 50
 ip address 10.50.1.1 255.255.255.0
 mac-address 000C.F142.4CDE standby 020C.F142.4CDE
!
interface GigabitEthernet0/2
 shutdown
 no nameif
 security-level 0
 no ip address
!
interface GigabitEthernet0/3
 shutdown
 no nameif
 security-level 0
 no ip address
!
interface Management0/0
 shutdown
 no nameif
 security-level 0
 no ip address
```

Related CommandsI

Command	Description
allocate-interface	Assigns interfaces and subinterfaces to a security context.
clear configure interface	Clears the interface configuration.
interface	Configures an interface and enters interface configuration mode.
nameif	Sets the interface name.
show interface	Displays the runtime status and statistics of interfaces.

show running-config interface bvi

To view the bridge virtual interface configuration in the running configuration, use the **show running-config interface bvi** command in privileged EXEC mode.

show running-config [**all**] **interface bvi** *bridge_group_number*

Syntax Description

all	(Optional) Shows all commands, including the commands you have not changed from the default.
bridge_group_number	Specifies the bridge group number as an integer between 1 and 100.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	—	•	•	•	—

Command History

Release	Modification
8.4(1)	We introduced this command.

Examples

The following is sample output from the show running-config interface bvi command:

```
hostname# show running-config interface bvi 1

interface BVI1
```

Related Commands

Command	Description
bridge-group	Groups transparent firewall interfaces into a bridge group.
clear configure interface bvi	Clears the bridge group interface configuration.
interface	Configures an interface.
interface bvi	Creates a bridge virtual interface.
ip address	Sets the management IP address for a bridge group.
show bridge-group	Shows bridge group information, including member interfaces and IP addresses.

show running-config ip address

To show the IP address configuration in the running configuration, use the s**how running-config ip address** command in privileged EXEC mode.

show running-config ip address [*physical_interface*[**.***subinterface*] | *mapped_name* | *interface_name*]

Syntax Description

interface_name	(Optional) Identifies the interface name set with the **nameif** command.
mapped_name	(Optional) In multiple context mode, identifies the mapped name if it was assigned using the **allocate-interface** command.
physical_interface	(Optional) Identifies the interface ID, such as **gigabitethernet0/1**. See the **interface** command for accepted values.
subinterface	(Optional) Identifies an integer between 1 and 4294967293 designating a logical subinterface.

Defaults

If you do not specify an interface, this command shows the IP address configuration for all interfaces.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

In multiple context mode, if you mapped the interface ID in the **allocate-interface** command, you can only specify the mapped name or the interface name in a context.

In transparent firewall mode, do not specify an interface because this command shows only the management IP address; the transparent firewall does not have IP addresses associated with interfaces.

This display also shows the **nameif** command and **security-level** command configuration.

Examples

The following is sample output from the **show running-config ip address** command:

```
hostname# show running-config ip address
!
interface GigabitEthernet0/0
 nameif inside
 security-level 100
```

```
 ip address 10.86.194.60 255.255.254.0
!
interface GigabitEthernet0/1
 nameif test
 security-level 0
 ip address 10.10.4.200 255.255.0.0
!
```

Related Commands

Command	Description
clear configure interface	Clears the interface configuration.
interface	Configures an interface and enters interface configuration mode.
ip address	Sets the IP address for the interface or sets the management IP address for a transparent firewall.
nameif	Sets the interface name.
security-level	Sets the security level for the interface.

show running-config ip audit attack

To show the **ip audit attack** configuration in the running configuration, use the **show running-config ip audit attack** command in privileged EXEC mode.

show running-config ip audit attack

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was changed from **show ip audit attack**.

Examples

The following is sample output from the **show running-config ip audit attack** command:

```
hostname# show running-config ip audit attack
ip audit attack action drop
```

Related Commands

Command	Description
ip audit attack	Sets the default actions for packets that match an attack signature.
ip audit info	Sets the default actions for packets that match an informational signature.
ip audit interface	Assigns an audit policy to an interface.
ip audit name	Creates a named audit policy that identifies the actions to take when a packet matches an attack signature or an informational signature.
ip audit signature	Disables a signature.

show running-config ip audit info

To show the **ip audit info** configuration in the running configuration, use the **show running-config ip audit info** command in privileged EXEC mode.

show running-config ip audit info

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was changed from **show ip audit info**.

Examples

The following is sample output from the **show running-config ip audit info** command:

```
hostname# show running-config ip audit info
ip audit info action drop
```

Related Commands

Command	Description
ip audit attack	Sets the default actions for packets that match an attack signature.
ip audit info	Sets the default actions for packets that match an informational signature.
ip audit interface	Assigns an audit policy to an interface.
ip audit name	Creates a named audit policy that identifies the actions to take when a packet matches an attack signature or an informational signature.
ip audit signature	Disables a signature.

show running-config ip audit interface

To show the **ip audit interface** configuration in the running configuration, use the **show running-config ip audit interface** command in privileged EXEC mode.

show running-config ip audit interface [*interface_name*]

Syntax Description

interface_name	(Optional) Specifies the interface name.

Defaults

If you do not specify an interface name, this command shows the configuration for all interfaces.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was changed from **show ip audit interface**.

Examples

The following is sample output from the **show running-config ip audit interface** command:

```
hostname# show running-config ip audit interface
ip audit interface inside insidepolicy
ip audit interface outside outsidepolicy
```

Related Commands

Command	Description
ip audit attack	Sets the default actions for packets that match an attack signature.
ip audit info	Sets the default actions for packets that match an informational signature.
ip audit interface	Assigns an audit policy to an interface.
ip audit name	Creates a named audit policy that identifies the actions to take when a packet matches an attack signature or an informational signature.
ip audit signature	Disables a signature.

show running-config ip audit name

To show the **ip audit name** configuration in the running configuration, use the **show running-config ip audit name** command in privileged EXEC mode.

show running-config ip audit name [*name* [**info** | **attack**]]

Syntax Description

attack	(Optional) Shows the named audit policy configuration for attack signatures.
info	(Optional) Shows the named audit policy configuration for informational signatures.
name	(Optional) Shows the configuration for the audit policy name created using the **ip audit name** command.

Defaults

If you do not specify a name, this command shows the configuration for all audit policies.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was changed from **show ip audit name**.

Examples

The following is sample output from the **show running-config ip audit name** command:

```
hostname# show running-config ip audit name
ip audit name insidepolicy1 attack action alarm
ip audit name insidepolicy2 info action alarm
ip audit name outsidepolicy1 attack action reset
ip audit name outsidepolicy2 info action alarm
```

Related Commands

Command	Description
ip audit attack	Sets the default actions for packets that match an attack signature.
ip audit info	Sets the default actions for packets that match an informational signature.
ip audit interface	Assigns an audit policy to an interface.
ip audit name	Creates a named audit policy that identifies the actions to take when a packet matches an attack signature or an informational signature.
ip audit signature	Disables a signature.

show running-config ip audit signature

To show the **ip audit signature** configuration in the running configuration, use the **show running-config ip audit signature** command in privileged EXEC mode.

show running-config ip audit signature [*signature_number*]

Syntax Description

signature_number	(Optional) Shows the configuration for the signature number, if present. See the **ip audit signature** command for a list of supported signatures.

Defaults

If you do not specify a number, this command shows the configuration for all signatures.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was changed from **show ip audit signature**.

Examples

The following is sample output from the **show running-config ip audit signature** command:

```
hostname# show running-config ip audit signature
ip audit signature 1000 disable
```

Related Commands

Command	Description
ip audit attack	Sets the default actions for packets that match an attack signature.
ip audit info	Sets the default actions for packets that match an informational signature.
ip audit interface	Assigns an audit policy to an interface.
ip audit name	Creates a named audit policy that identifies the actions to take when a packet matches an attack signature or an informational signature.
ip audit signature	Disables a signature.

show running-config ip local pool

To display IP address pools, use the **show running-config ip local pool** command in privileged EXEC mode.

show running-config ip local pool [*poolname*]

Syntax Description

poolname	(Optional) Specifies the name of the IP address pool.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show running-config ip local pool** command:

```
hostname(config)# show running-config ip local pool firstpool

Pool            Begin           End             Mask            Free    In use
firstpool               10.20.30.40     10.20.30.50     255.255.255.0      11
    0
Available Addresses:
10.20.30.40
10.20.30.41
10.20.30.42
10.20.30.43
10.20.30.44
10.20.30.45
10.20.30.46
10.20.30.47
10.20.30.48
10.20.30.49
10.20.30.50
```

Related Commands

Command	Description
clear configure ip local pool	Removes all ip local pools
ip local pool	Configures an IP address pool.

show running-config ip verify reverse-path

To show the **ip verify reverse-path** configuration in the running configuration, use the **show running-config ip verify reverse-path** command in privileged EXEC mode.

show running-config ip verify reverse-path [interface *interface_name*]

Syntax Description

interface *interface_name*	(Optional) Shows the configuration for the specified interface.

Defaults

This command shows the configuration for all interfaces.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was changed from **show ip verify reverse-path**.

Examples

The following is sample output from the **show ip verify statistics** command:

```
hostname# show running-config ip verify reverse-path
ip verify reverse-path interface inside
ip verify reverse-path interface outside
ip verify reverse-path interface dmz
```

Related Commands

Command	Description
clear configure ip verify reverse-path	Clears the **ip verify reverse-path** configuration.
clear ip verify statistics	Clears the Unicast RPF statistics.
ip verify reverse-path	Enables the Unicast Reverse Path Forwarding feature to prevent IP spoofing.
show ip verify statistics	Shows the Unicast RPF statistics.

show running-config ipv6

To display the IPv6 commands in the running configuration, use the **show running-config ipv6** command in privileged EXEC mode.

show running-config [**all**] **ipv6**

Syntax Description

all	(Optional) Shows all **ipv6** commands, including the commands you have not changed from the default, in the running configuration.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show running-config ipv6** command:

```
hostname# show running-config ipv6
ipv6 unicast-routing
ipv6 route vlan101 ::/0 fec0::65:0:0:a0a:6575
ipv6 access-list outside_inbound_ipv6 permit ip any any
ipv6 access-list vlan101_inbound_ipv6 permit ip any any
hostname#
```

Related Commands

Command	Description
debug ipv6	Displays IPv6 debugging messages.
show ipv6 access-list	Displays the IPv6 access list.
show ipv6 interface	Displays the status of the IPv6 interfaces.
show ipv6 route	Displays the contents of the IPv6 routing table.
show ipv6 traffic	Displays IPv6 traffic statistics.

show running-config ipv6 router

To display the running configuration of OSPFv3 for IPv6, use the **show running-config ipv6 router** command in user EXEC or privileged EXEC mode.

show running-config ipv6 router {**ospf**}

Syntax Description

ospf	Shows the running configuration for OSPFv3 processes.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—
User EXEC	•	—	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Examples

The following is sample output from the **show running-config ipv6 router** command:

```
hostname# show running-config ipv6 router
ipv6 unicast-routing
ipv6 route vlan101 ::/0 fec0::65:0:0:a0a:6575
```

Related Commands

Command	Description
clear ipv6 ospf	Deletes all IPv6 settings in the OSPFv3 routing process.
debug ospfv3	Provides debugging information for troubleshooting OSPFv3 routing processes.

show running-config isakmp

To display the complete ISAKMP configuration, use the **show running-config isakmp** command in global configuration or privileged EXEC mode.

show running-config isakmp

Syntax Description

This command has no default behavior or values.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	The **show running-config isakmp** command was introduced.
7.2(1)	This command was deprecated. The **show running-config crypto isakmp** command replaces it.

Examples

The following example issued in global configuration mode, displays information about the ISKAKMP configuration:

```
hostname(config)# show running-config isakmp
isakmp enable inside
isakmp policy 1 authentication pre-share
isakmp policy 1 encryption 3des
isakmp policy 1 hash md5
isakmp policy 1 group 2
isakmp policy 1 lifetime 86400
hostname(config)#
```

Related Commands

Command	Description
clear configure isakmp	Clears all the ISAKMP configuration.
clear configure isakmp policy	Clears all ISAKMP policy configuration.
clear isakmp sa	Clears the IKE runtime SA database.

Command	Description
isakmp enable	Enables ISAKMP negotiation on the interface on which the IPsec peer communicates with the ASA.
show isakmp sa	Displays IKE runtime SA database with additional information.

CHAPTER 56

show running-config ldap through show running-config router Commands

show running-config ldap

To display the LDAP attribute name and value mappings in running LDAP attribute maps, use the **show running-config ldap** command in privileged EXEC mode.

show running-config [**all**] **ldap attribute-map** *name*

Syntax Description

all	Displays all LDAP attribute maps.
name	Specifies an individual LDAP attribute map for display.

Defaults

By default, all attribute maps, mapped names, and mapped values display.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

Use this command to display the LDAP attribute name and value mappings contained in attribute maps running on your ASA. You can display all the attribute maps using the **all** option, or you can display a single attribute map by specifying the map name. If you enter neither the **all** option nor an LDAP attribute map name, all attribute maps, mapped names, and mapped values display.

Examples

The following example, entered in privileged EXEC mode, displays the attribute name and value mappings for a specific running attribute map, “myldapmap”:

```
hostname# show running-config ldap attribute-map myldapmap
map-name Hours cVPN3000-Access-Hours
map-value Hours workDay Daytime
```

The following command displays all attribute name and value mappings within all running attribute maps:

```
hostname# show running-config all ldap attribute-map
```

Related Commands

Command	Description
ldap attribute-map (global config mode)	Creates and names an LDAP attribute map for mapping user-defined attribute names to Cisco LDAP attribute names.
ldap-attribute-map (aaa-server host mode)	Binds an LDAP attribute map to an LDAP server.
map-name	Maps a user-defined LDAP attribute name with a Cisco LDAP attribute name.
map-value	Maps a user-defined attribute value to a Cisco attribute.
clear configure ldap attribute-map	Removes all LDAP attribute maps.

show running-config license-server

To show the license server configuration, use the **show running-config license-server** command in privileged EXEC mode.

show running-config [**all**] **license-server**

Syntax Description

all	(Optional) Shows the running configuration, including default configuration values.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Examples

The following is sample output from the **show running-config all license-server** command:

```
hostname# show running-config all license-server

license-server backup 10.1.1.2 backup-id JMX0916L0Z4 ha-backup-id JMX1378N0W3
license-server secret ********
license-server refresh-interval 30
license-server port 50554
license-server enable inside
```

Related Commands

Command	Description
activation-key	Enters a license activation key.
clear configure license-server	Clears the shared licensing server configuration.
clear shared license	Clears shared license statistics.
license-server address	Identifies the shared licensing server IP address and shared secret for a participant.
license-server backup address	Identifies the shared licensing backup server for a participant.
license-server backup backup-id	Identifies the backup server IP address and serial number for the main shared licensing server.

Command	Description
license-server backup enable	Enables a unit to be the shared licensing backup server.
license-server enable	Enables a unit to be the shared licensing server.
license-server port	Sets the port on which the server listens for SSL connections from participants.
license-server refresh-interval	Sets the refresh interval provided to participants to set how often they should communicate with the server.
license-server secret	Sets the shared secret on the shared licensing server.
show activation-key	Shows the current licenses installed.
show shared license	Shows shared license statistics.
show vpn-sessiondb	Shows license information about VPN sessions.

show running-config logging

To display all currently running logging configurations, use the **show runnig-config logging** command in privileged EXEC mode.

show running-config [all] logging [level | disabled]

Syntax Description

all	(Optional) Displays the logging configuration, including commands whose settings you have not changed from default values.
disabled	(Optional) Displays only the disabled syslog message configuration.
level	(Optional) Displays only the configuration for syslog messages with a non-default severity level.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was changed from the **show logging** command.

Examples

The following shows sample output from the **show running-config logging disabled** command:

```
hostname# show running-config logging disabled

no logging message 720067
```

Related Commands

Command	Description
logging message	Configures logging.
show logging	Shows the log buffer and other logging settings.

show running-config mac-address

To show the **mac-address auto** configuration in the running configuration, use the s**how running-config mac-address** command in privileged EXEC mode.

show running-config mac-address

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	—	—	•

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following is sample output from the **show running-config mac-address** command:

```
hostname# show running-config mac-address
no mac-address auto
```

Related Commands

Command	Description
failover mac address	Sets the active and standby MAC address of a physical interface for Active/Standby failover.
mac address	Sets the active and standby MAC address of a physical interface for Active/Active failover.
mac-address	Manually sets the MAC address (active and standby) for a physical interface or subinterface. In multiple context mode, you can set different MAC addresses in each context for the same interface.
mac-address auto	Auto-generates MAC addresses (active and standby) for shared interfaces in multiple context mode.
show interface	Shows the interface characteristics, including the MAC address.

show running-config mac-address-table

To view the **mac-address-table static** and **mac-address-table aging-time** configuration in the running configuration, use the **show running-config mac-address-table** command in privileged EXEC mode.

show running-config mac-address-table

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	—	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show running-config mac-learn** command:

```
hostname# show running-config mac-address-table
mac-address-table aging-time 50
mac-address-table static inside1 0010.7cbe.6101
```

Related Commands

Command	Description
firewall transparent	Sets the firewall mode to transparent.
mac-address-table aging-time	Sets the timeout for dynamic MAC address entries.
mac-address-table static	Adds static MAC address entries to the MAC address table.
mac-learn	Disables MAC address learning.
show mac-address-table	Shows the MAC address table, including dynamic and static entries.

show running-config mac-learn

To view the **mac-learn** configuration in the running configuration, use the **show running-config mac-learn** command in privileged EXEC mode.

show running-config mac-learn

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	—	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show running-config mac-learn** command:

```
hostname# show running-config mac-learn
mac-learn disable
```

Related Commands

Command	Description
firewall transparent	Sets the firewall mode to transparent.
mac-address-table static	Adds static MAC address entries to the MAC address table.
mac-learn	Disables MAC address learning.
show mac-address-table	Shows the MAC address table, including dynamic and static entries.

show running-config mac-list

To display a list of MAC addresses previously specified in a **mac-list** command with the indicated MAC list number, use the **show running-config mac-list** command in privileged EXEC mode.

show running-config mac-list *id*

Syntax Description

id	A hexadecimal MAC address list number.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was modified to conform to CLI guidelines.

Usage Guidelines

The **show running-config aaa** command displays the **mac-list** command statements as part of the AAA configuration.

Examples

The following example shows how to display a MAC address list with the *id* equal to adc:

```
hostname(config)# show running-config mac-list adc
mac-list adc permit 00a0.cp5d.0282 ffff.ffff.ffff
mac-list adc deny 00a1.cp5d.0282 ffff.ffff.ffff
mac-list ac permit 0050.54ff.0000 ffff.ffff.0000
mac-list ac deny 0061.54ff.b440 ffff.ffff.ffff
mac-list ac deny 0072.54ff.b440 ffff.ffff.ffff
```

Related Commands

Command	Description
mac-list	Add a list of MAC addresses using a first-match search.
clear configure mac-list	Remove the indicated **mac-list** command statements.
show running-config aaa	Display the running AAA configuration values.

show running-config management-access

To display the name of the internal interface configured for management access, use the **show running-config management-access** command in privileged EXEC mode.

show running-config management-access

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **management-access** command lets you define an internal management interface using the IP address of the firewall interface specified in *mgmt_if*. (The interface names are defined by the **nameif** command and displayed in quotes, " ", in the output of the **show interface** command.)

Examples

The following example shows how to configure a firewall interface named "inside" as the management access interface and display the result:

```
hostname# management-access inside
hostname# show running-config management-access
management-access inside
```

Related Commands

Command	Description
clear configure management-access	Removes the configuration of an internal interface for management access of the ASA.
management-access	Configures an internal interface for management access.

show running-config monitor-interface

To display all **monitor-interface** commands in the running configuration, use the **show running-config monitor-interface** command in privileged EXEC mode.

show running-config [all] monitor-interface

Syntax Description

all	(Optional) Shows all **monitor-interface** commands, including the commands you have not changed from the default.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **monitor-interface** command is enabled on all physical interfaces by default. You need to use the **all** keyword with this command to view this default configuration.

Examples

The following is sample output from the **show running-config monitor-interface** command. The first time the command is entered without the **all** keyword, so only the interface that has monitoring enabled appears in the output. The second time the command is entered with the **all** keyword, so the default **monitor-interface** configuration is also show.

```
hostname# show running-config monitor-interface
no monitor-interface outside
hostname#
hostname# show running-config all monitor-interface
monitor-interface inside
no monitor-interface outside
hostname#
```

Related Commands

Command	Description
monitor-interface	Enables health monitoring of a designated interface for failover purposes.
clear configure monitor-interface	Removes the **no monitor-interface** commands in the running configuration and restores the default interface health monitoring stance.

show running-config mroute

To display the static multicast route table in the configuration use the **show running-config mroute** command in privileged EXEC mode.

show running-config mroute [*dst* [*src*]]

Syntax Description

dst	The Class D address of the multicast group.
src	The IP address of the multicast source.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	Added keyword **running-config**.

Examples

The following is sample output from the **show running-config mroute** command:

```
hostname# show running-config mroute
```

Related Commands

Command	Description
mroute	Configures a static multicast route.

show running-config mtu

To display the current maximum transmission unit block size, use the **show running-config mtu** command in privileged EXEC mode.

show running-config mtu [*interface_name*]

Syntax Description

interface_name	(Optional) Internal or external network interface name.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	—	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show running-config mtu** command:

```
hostname# show running-config mtu
mtu outside 1500
mtu inside 1500
mtu dmz 1500
hostname# show running-config mtu outside
mtu outside 1500
```

Related Commands

Command	Description
clear configure mtu	Clears the configured maximum transmission unit values on all interfaces.
mtu	Specifies the maximum transmission unit for an interface.

show running-config multicast-routing

To display the **multicast-routing** command, if present, in the running configuration, use the **show running-config multicast-routing** command in privileged EXEC mode.

show running-config multicast-routing

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **show running-config multicast-routing** command displays the **multicast-routing** command in the running configuration. Enter the **clear configure multicast-routing** command to remove the **multicast-routing** command from the running configuration.

Examples

The following is sample output from the **show running-config multicast-routing** command:

```
hostname# show running-config multicast-routing

multicast-routing
```

Related Commands

Command	Description
clear configure multicast-routing	Removes the **multicast-routing** command from the running configuration.
multicast-routing	Enables multicast routing on the ASA.

show running-config nac-policy

To show the configuration of each NAC policy on the ASA, use the **show running-config nac-policy** command in privileged EXEC mode.

show running-config [all] nac-policy [*nac-policy-name*]

Syntax Description

all	Displays the entire operating configuration of the NAC policy, including default settings.
nac-policy-name	Name of the NAC policy present in the configuration of the ASA.

Defaults

By default, the CLI displays the name and configuration of each NAC policy if you do not specify the *nac-policy-name.*

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	—	—	•

Command History

Release	Modification
8.0(2)	This command was introduced.

Examples

The following example shows the configuration of NAC policies named nacapp1 and nacapp2:

```
hostname# show running-config nac-policy
nac-policy framework nac-framework
 default-acl acl-1
 reval-period 36000
 sq-period 300
 exempt-list os "Windows XP" filter acl-2
nac-policy nacapp1 nacapp
 auth-vlan 1
 cas 209.165.202.129
 cam outside 209.165.201.22 community secretword
timeout 10
hostname#
```

The first line of each NAC policy indicates its name and type. The types are as follows:

- nacapp uses a Cisco NAC Appliance to provide a network access policy for remote hosts. Table 56-1 explains the nacapp attributes displayed in response to the **show running-config nac-policy** command.

- nac-framework uses a Cisco Access Control Server to provide a network access policy for remote hosts. Table 56-2 explains the nac-framework attributes displayed in response to the **show running-config nac-policy** command.

Table 56-1 show running-config nac-policy Command Fields for nacapp policies

Field	Description
auth-vlan	Authentication VLAN that provides the user with limited access while posture validation is in progress. Upon completion of the tunnel, the ASA copies the value of the auth-vlan to the vlan attribute assigned to the session. Following a successful posture validation, the ASA overwrites the value of the vlan attribute with the value of the access VLAN obtained from the NAC Appliance.
cam	This line shows the following values: • Interface on the ASA through which to communicate with the Clean Access Manager. • IP address or hostname of the CAM. • SNMP community string on the CAM.
cas	IP address or hostname of the Clean Access Server.
timeout	Maximum number of minutes a user session can be assigned to an authentication VLAN.

Table 56-2 show running-config nac-policy Command Fields for nac-framework policies

Field	Description
default-acl	NAC default ACL applied before posture validation. Following posture validation, the security appliance replaces the default ACL with the one obtained from the Access Control Server for the remote host. It retains the default ACL if posture validation fails.
reval-period	Number of seconds between each successful posture validation in a NAC Framework session.
sq-period	Number of seconds between each successful posture validation in a NAC Framework session and the next query for changes in the host posture
exempt-list	Operating system names that are exempt from posture validation. Also shows an optional ACL to filter the traffic if the remote computer's operating system matches the name.
authentication-server-group	name of the of authentication server group to be used for NAC posture validation.

Related Commands

nac-policy	Creates and accesses a Cisco NAC policy, and specifies its type.
clear configure nac-policy	Removes all NAC policies from the running configuration except for those that are assigned to group policies.
show nac-policy	Displays NAC policy usage statistics on the ASA.
show vpn-session_summary.db	Displays the number IPSec, Cisco AnyConnect, and NAC sessions, including VLAN mapping session data.
show vpn-session.db	Displays information about VPN sessions, including VLAN mapping and NAC results.

show running-config name

To display a list of names associated with IP addresses (configured with the **name** command), use the **show running-config name** command in privileged EXEC mode.

show running-config name

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

This example shows how to display a list of names associated with IP addresses:

```
hostname# show running-config name
name 192.168.42.3 sa_inside
name 209.165.201.3 sa_outside
```

Related Commands

Command	Description
clear configure name	Clears the list of names from the configuration.
name	Associates a name with an IP address.

show running-config nameif

To show the interface name configuration in the running configuration, use the s**how running-config nameif** command in privileged EXEC mode.

show running-config nameif [*physical_interface*[**.***subinterface*] | *mapped_name*]

Syntax Description

mapped_name	(Optional) In multiple context mode, identifies the mapped name if it was assigned using the **allocate-interface** command.
physical_interface	(Optional) Identifies the interface ID, such as **gigabitethernet0/1**. See the **interface** command for accepted values.
subinterface	(Optional) Identifies an integer between 1 and 4294967293 designating a logical subinterface.

Defaults

If you do not specify an interface, this command shows the interface name configuration for all interfaces.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was changed from **show nameif**.

Usage Guidelines

In multiple context mode, if you mapped the interface ID in the **allocate-interface** command, you can only specify the mapped name in a context.

This display also shows the **security-level** command configuration.

Examples

The following is sample output from the **show running-config nameif** command:

```
hostname# show running-config nameif
!
interface GigabitEthernet0/0
 nameif inside
 security-level 100
!
interface GigabitEthernet0/1
 nameif test
 security-level 0
!
```

Related Commands

Command	Description
allocate-interface	Assigns interfaces and subinterfaces to a security context.
clear configure interface	Clears the interface configuration.
interface	Configures an interface and enters interface configuration mode.
nameif	Sets the interface name.
security-level	Sets the security level for the interface.

show running-config names

To display the IP address-to-name conversions, use the **show running-config names** command in privileged EXEC mode.

show running-config names

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Use with the **names** command.

Examples

The following example shows how to display the IP address-to-name conversion:

```
hostname# show running-config names
name 192.168.42.3 sa_inside
name 209.165.201.3 sa_outside
```

Related Commands

Command	Description
clear configure name	Clears the list of names from the configuration.
name	Associates a name with an IP address.
names	Enables IP address-to-name conversions that you can configured with the **name** command.
show running-config name	Displays a list of names associated with IP addresses.

show running-config nat

To display the NAT configuration, use the **show running-config nat** command in privileged EXEC mode.

show running-config nat

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.3(1)	This command was changed to support the new NAT implementation.
7.0(1)	Added keyword **running-config**.

Usage Guidelines

Use this command to view the twice NAT and network object NAT configuration.

Note You cannot view the NAT configuration using the **show running-config object** command. You cannot reference objects or object groups that have not yet been created in **nat** commands. To avoid forward or circular references in **show** command output, the **show running-config** command shows the **object** command two times: first, where the IP address(es) are defined; and later, where the **nat** command is defined. This command output guarantees that objects are defined first, then object groups, and finally NAT.

Examples

The following example shows the twice NAT and network object NAT configuration:

```
hostname# show running-config nat

object network obj1
    range 192.168.49.1 192.150.49.100
object network obj2
    object 192.168.49.100
object network network-1
    subnet <network-1>
object network network-2
```

```
    subnet <network-2>
object-group network pool
    network-object object obj1
    network-object object obj2
!
object network network-1
    nat (inside,outside) dynamic pool
object network network-2
    nat (inside,outside) dynamic pool
```

Related Commands

Command	Description
clear configure nat	Removes the NAT configuration.
nat	Configures NAT.

show running-config ntp

To show the NTP configuration in the running configuration, use the **show running-config ntp** command in privileged EXEC mode.

show running-config ntp

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show running-config ntp** command:

```
hostname# show running-config ntp
ntp authentication-key 1 md5 test2
ntp authentication-key 2 md5 test
ntp trusted-key 1
ntp trusted-key 2
ntp server 10.1.1.1 key 1
ntp server 10.2.1.1 key 2 prefer
```

Related Commands

Command	Description
ntp authenticate	Enables NTP authentication.
ntp authentication-key	Sets an encrypted authentication key to synchronize with an NTP server.
ntp server	Identifies an NTP server.
ntp trusted-key	Provides a key ID for the ASA to use in packets for authentication with an NTP server.
show ntp status	Shows the status of the NTP association.

show running-config object

To display the current objects in the configuration, use the **show running-config object** command in privileged EXEC mode.

show running-config object

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.3(1)	This command was introduced.

Usage Guidelines

You cannot view the NAT configuration within an object using the **show running-config object** command; you must use the **show running-config nat** command. Also, you cannot reference objects or object groups that have not yet been created in **nat** commands. The reason is that **nat** commands can contain objects within them for mapped addresses, so you must define an object before you use it within a **nat** command. Without this separation, you could potentially have a configuration with a circular or forward reference problem. See the **nat** commands for more information.

Examples

The following is sample output from the **show running-config object** command:

```
hostname# show running-config object
object network obj1
    range 192.168.41.1 192.150.49.100
object network obj2
    object 192.168.49.100
object network network-1
    subnet <network-1>
object network network-2
    subnet <network-2>
object-group network pool
    network-object object obj1
    network-object object obj2
```

Related Commands

Command	Description
clear configure object	Removes all unused objects from the configuration.
group-object	Adds network object groups.
network-object	Adds a network object to a network object group.
object-group	Defines object groups to optimize your configuration.
port-object	Adds a port object to a service object group.
service-object	Adds a service object to a service object group.

show running-config object-group

To display the current object groups, use the **show running-config object-group** command in privileged EXEC mode.

show running-config [**all**] **object-group** [**protocol** | **service** | **network** | **icmp-type** | **security-group** | **id** *obj_grp_id*]

Syntax Description

icmp-type	(Optional) Displays ICMP type object groups.
id obj_grp_id	(Optional) Displays the specified object group.
network	(Optional) Displays network object groups.
protocol	(Optional) Displays protocol object groups.
security-group	(Optional) Displays security object groups.
service	(Optional) Displays service object groups.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show running-config object-group** command:

```
hostname# show running-config object-group
object-group protocol proto_grp_1
    protocol-object udp
    protocol-object tcp
object-group service eng_service tcp
    port-object eq smtp
    port-object eq telnet
object-group icmp-type icmp-allowed
    icmp-object echo
    icmp-object time-exceeded
```

Related Commands

Command	Description
clear configure object-group	Removes all the **object group** commands from the configuration.
group-object	Adds network object groups.
network-object	Adds a network object to a network object group.
object-group	Defines object groups to optimize your configuration.
port-object	Adds a port object to a service object group.

show running config object-group-search

To display the object-group-search configuration, use the **show running-config object-group-search** command in privileged EXEC mode.

show running-config object-group-search [all]

Syntax Description

all	(Optional) Shows all commands, including the commands you have not changed from the default.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.3(1)	This command was introduced.

Examples

The following is sample output from the **show running-config object-group-search** command:

```
hostname# show running-config object-group-search
```

Related Commands

Command	Description
clear config object-group-search	Clears the object-group-search configuration.
show running-config object-group	Displays the current object groups.
show running-config object-group-search	Shows the object-group-search configuration in the running configuration.

show running-config pager

To show the number of lines on a page set to displayin a Telnet session before the "---More---" prompt appears in the running configuration, use the **show running-config pager** command in privileged EXEC mode.

show running-config pager

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **show running-config pager** commandshows the number of lines on a page set to displayin a Telnet session before the "---More---" prompt appears in the running configuration in global configuration mode.

Examples

The following is sample output from the **show running-config pager** command:

```
hostname# show running-config pager

pager lines 24
```

Related Commands

Command	Description
clear configure pager	Removes the number of lines set to display in a Telnet session before the "---More---" prompt appears from the running configuration.

Command	Description
show pager	Displays the default number of lines set to display in a Telnet session before the "---More---" prompt appears.
terminal pager	Sets the number of lines to display in a Telnet session before the "---More---" prompt appears. This command is not saved to the running configuration.

show running-config passwd

To show the encrypted login passwords, use the **show running-config passwd** command in privileged EXEC mode.

show running-config {**passwd** | **password**}

Syntax Description

passwd | **password**	You can enter either command; they are aliased to each other.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was changed from the **show passwd** command.

Usage Guidelines

The password is saved to the configuration in encrypted form, so you cannot view the original password after you enter it. The password displays with the **encrypted** keyword to indicate that the password is encrypted.

Examples

The following is sample output from the **show running-config passwd** command:

```
hostname# show running-config passwd
passwd 2AfK9Kjr3BE2/J2r encrypted
```

Related Commands

Command	Description
clear configure passwd	Clears the login password.
enable	Enters privileged EXEC mode.
enable password	Sets the enable password.
passwd	Sets the login password.
show curpriv	Shows the currently logged in username and the user privilege level.

show running-config password-policy

To show the password policy for the current context, use the **show running-config password-policy** command in privileged EXEC mode.

show running-config [**all**] **password-policy**

Syntax Description

all	Displays all policy attributes; otherwise, only attributes with non-default values appear.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
9.1(2)	This command was introduced.

Usage Guidelines

This command shows only the password policy from the current context unless you use the **all** keyword.

Examples

The following is sample output from the **show running-config password-policy** command:

```
hostname# show running-config password-policy
password-policy minimum-length 10
password-policy minimum-changes 3
password-policy minimum-lowercase 2
password-policy minimum-uppercase 1
password-policy minimum-numeric 0
password-policy minimum-special 1
password-policy lifetime 1000
password-policy authenticate-enable
```

Related Commands

Command	Description
clear configure password-policy	Clears the password policy for the current context to the default value.
change-password	Allows users to change their own account password.

show running-config phone-proxy

To show Phone Proxy specific information, use the **show running-config phone-proxy** command in privileged EXEC mode.

show running-config [**all**] **phone-proxy** [*phone_proxy_name*]

Syntax Description

phone_proxy_name	(Optional) Specifies the name of the Phone Proxy instance.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
8.0(4)	The command was introduced.

Examples

The following example shows the use of the **show running-config phone-proxy** command to show Phone Proxy specific information:

```
hostname# show running-config all phone proxy asa_phone_proxy
```

Related Commands

Command	Description
phone-proxy	Configures the Phone Proxy instance.

show running-config pim

To display the PIM commands in the running configuration, use the **show running-config pim** command in privileged EXEC mode.

show running-config pim

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **show running-config pim** command displays the **pim** commands entered in global configuration mode. It does not show the **pim** commands entered in interface configuration mode. To see the **pim** commands entered in interface configuration mode, enter the **show running-config interface** command.

Examples

The following is sample output from the **show running-config pim** command:

```
hostname# show running-config pim

pim old-register-checksum
pim spt-threshold infinity
```

Related Commands

Command	Description
clear configure pim	Removes the **pim** commands from the running configuration.
show running-config interface	Displays interface configuration commands entered in interface configuration mode.

show running-config policy-map

To display all the policy-map configurations or the default policy-map configuration, use the **show running-config policy-map** command in privileged EXEC mode.

show running-config [all] policy-map [*policy_map_name* | **type inspect** [*protocol*]]

Syntax Description

all	(Optional) Shows all commands, including the commands you have not changed from the default.
policy_map_name	(Optional) Shows the running configuration for a policy map name.
protocol	(Optional) Specifies the type of inspection policy map you want to show. Available types include: • **dcerpc** • **dns** • **esmtp** • **ftp** • **gtp** • **h323** • **http** • **im** • **mgcp** • **netbios** • **p2p** • **radius-accounting** • **sip** • **skinny** • **snmp**
type inspect	(Optional) Shows inspection policy maps.

Defaults

Omitting the **all** keyword displays only the explicitly configured policy-map configuration.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Specifying the **all** keyword displays the default policy-map configuration as well as the explicitly configured policy-map configuration.

Examples

The following is sample output from the **show running-config policy-map** command:

```
hostname# show running-config policy-map
!
policy-map localmap1
    description this is a test.
    class firstclass
    priority
    ids promiscuous fail0close
    set connection random-seq# enable
    class class-default
!
```

Related Commands

Command	Description
policy-map	Configures a policy; that is, an association of a traffic class and one or more actions.
clear configure policy-map	Removes the entire policy configuration.

show running-config pop3s

To display the running configuration for POP3S, use the s**how running-config pop3s** command in privileged EXEC mode. To have the display include the default configuration, use the **all** keyword.

show running-config [all] pop3s

Syntax Description

all	Displays the running configuration including default values.

Defaults

No default behavior or values.

Command History

Release	Modification
7.0(1)	This command was introduced.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—
Global configuration	•	—	•	—	—
Webvpn	•	—	•	—	—

Examples

The following is sample output from the **show running-config pop3s** command:

```
hostname# show running-config pop3s

pop3s
 server 10.160.102.188
 authentication-server-group KerbSvr
 authentication aaa

hostname# show running-config all pop3s

pop3s
 port 995
 server 10.160.102.188
 outstanding 20
 name-separator :
 server-separator @
 authentication-server-group KerbSvr
 no authorization-server-group
 no accounting-server-group
 no default-group-policy
 authentication aaa
```

Related Commands

Command	Description
clear configure pop3s	Removes the POP3S configuration.
pop3s	Creates or edits a POP3S e-mail proxy configuration.

show running-config prefix-list

To display the **prefix-list** command in the running configuration, use the **show running-config prefix-list** command in privileged EXEC mode.

show running-config prefix-list

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was changed from the **show prefix-list** command to the **show running-config prefix-list** command.
9.0(1)	Multiple context modde is supported.

Usage Guidelines

The **prefix-list description** commands always appear before their associated **prefix-list** commands in the running configuration. It does not matter what order you entered them.

Examples

The following is sample output from the **show running-config prefix-list** command:

```
hostname# show running-config prefix-list

!
prefix-list abc description A sample prefix list
prefix-list abc seq 5 permit 192.168.0.0/8 le 24
prefix-list abc seq 10 deny 10.0.0.0/8 le 32
!
```

Related Commands

Command	Description
clear configure prefix-list	Clears the **prefix-list** commands from the running configuration.

show running-config priority-queue

To display the priority queue configuration details for an interface, use the **show running-config priority-queue** command in privileged EXEC mode.

show running-config priority-queue *interface-name*

Syntax Description

interface-name	Specifies the name of the interface for which you want to show the priority queue details

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

This example shows the use of the show running-config priority-queue command for the interface named test, and the command output:

```
hostname# show running-config priority-queue test
priority-queue test
  queue-limit   50
  tx-ring-limit 10
hostname#
```

Related Commands

Command	Description
clear configure priority-queue	Removes the priority-queue configuration from the named interface.
priority-queue	Configures priority queueing on an interface.
show priority-queue statistics	Shows the statistics for the priority queue configured on the named interface.

show running-config privilege

To display the privileges for a command or a set of commands, use the **show running-config privilege** command in privileged EXEC mode.

show running-config [all] privilege [**all | command** *command* **| level** *level*]

Syntax Description

all	(Optional) First occurrence -- Displays the default privilege level.
all	(Optional) Second occurrence -- Displays the privilege level for all commands.
command *command*	(Optional) Displays the privilege level for a specific command.
level *level*	(Optional) Displays the commands that are configured with the specified level; valid values are from 0 to 15.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was modified for this release to conform to CLI guidelines.

Usage Guidelines

Use the **show running-config privilege** command to view the current privilege level.

Examples

```
hostname(config)# show running-config privilege level 0
privilege show level 0 command checksum
privilege show level 0 command curpriv
privilege configure level 0 mode enable command enable
privilege show level 0 command history
privilege configure level 0 command login
privilege configure level 0 command logout
privilege show level 0 command pager
privilege clear level 0 command pager
privilege configure level 0 command pager
privilege configure level 0 command quit
privilege show level 0 command version
```

Related Commands

Command	Description
clear configure privilege	Remove privilege command statements from the configuration.
privilege	Configure the command privilege levels.
show curpriv	Display current privilege level.
show running-config privilege	Display privilege levels for commands.

show running-config quota management-session

To show the current value of the management session quota, use the **show running-config quota management-session** command in privileged EXEC mode.

show running-config [**all**] **quota management-session**

Syntax Description

all	Displays the current value of the management session quota.

Defaults

The default is 0.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
8.4(4.1)	This command was introduced.

Usage Guidelines

The current value of the quota management session does not appear if it is set to the default value of 0.

Examples

The following is sample output from the **show running-config quota management-session** command:

```
hostname# show running-config quota management-session
quota management-session 250
```

Related Commands

Command	Description
show quota management-session	Shows statistics for the management session.
quota management-session	Sets the number of simultaneous ASDM, SSH, and Telnet sessions allowed on the device.

show running-config regex

To display all regular expressions configured with the **regex** command, use the **show running-config regex** command in privileged EXEC mode.

show running-config regex

Syntax Description

This command has no arguments or keywords.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output of the **show running-config regex** command, which shows all regular expressions:

```
hostname# show running-config regex
regex test "string"
```

Related Commands

Command	Description
class-map type regex	Creates a regular expression class map.
clear configure regex	Clears all regular expressions.
regex	Creates a regular expression.
test regex	Tests a regular expression.

show running-config route

To display the route configuration that is running on the ASA, use the **show running-config route** command in privileged EXEC mode.

show running-config [**all**] **route**

Syntax Description

No default behavior or values.

Defaults

This command has no arguments or keywords.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	Added keyword **running-config**.

Examples

The following is sample output from the **show running-config route** command:

```
hostname# show running-config route
route outside 10.30.10.0 255.255.255.0 1
```

Related Commands

Command	Description
clear configure route	Removes the **route** commands from the configuration that do not contain the **connect** keyword.
route	Specifies a static or default route for the an interface.
show route	Displays route information.

show running-config route-map

To display the information about the route map configuration, use the **show running-config route-map** command in privileged EXEC mode.

show running-config route-map [*map_tag*]

Syntax Description

map_tag	(Optional) Text for the route-map tag.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	Added keyword **running-config**.

Usage Guidelines

To show all route-maps defined in the configuration, use the **show running-config route-map** command. To show individual route-maps by name, use the **show running-config route-map** *map_tag* command, where *map_tag* is the name of the route-map. Multiple route maps may share the same map tag name.

Examples

The following is sample output from the **show running-config route-map** command:

```
hostname# show running-config route-map
route-map maptag1 permit sequence 10
    set metric 5
    match metric 3
route-map maptag1 permit sequence 12
    set metric 5
    match interface backup
    match metric 3
route-map maptag2 deny sequence 10
    match interface dmz
```

Related Commands

Command	Description
clear configure route-map	Removes the conditions for redistributing the routes from one routing protocol into another routing protocol.
route-map	Defines the conditions for redistributing routes from one routing protocol into another.

show running-config router

To display the global configuration commands for the specified routing protocol, use the **show running-config router** command in privileged EXEC mode.

show running-config [all] **router** [**ospf** [*process_id*] | **rip** | **eigrp** [*as-number*]]

Syntax Description

all	Shows all router commands, including the commands you have not changed from the default.
as-number	(Optional) Displays the router configuration commands for the specified EIGRP autonomous system number. If not specified, the router configuration commands for all EIGRP routing processes are displayed. Because only one EIGRP routing process is supported on the ASA, including the optional *as-number* argument has the same effect as omitting it.
eigrp	(Optional) Displays the EIGRP router configuration commands.
ospf	(Optional) Displays the OSPF router configuration commands.
process_id	(Optional) Displays the commands for the selected OSPF process.
rip	(Optional) Displays the RIP router configuration commands.

Defaults

If a routing protocol is not specified, the router configuration commands for all configured routing protocols are displayed.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was changed from the **show router** command to the **show running-config router** command.
8.0(2)	This command was modified to include the **eigrp** keyword.

Examples

The following is sample output from the **show running-config router ospf** command:

```
hostname# show running-config router ospf 1

router ospf 1
  log-adj-changes detail
  ignore lsa mospf
  no compatible rfc1583
```

```
  distance ospf external 200
  timers spf 10 20
  timers lsa-group-pacing 60
```

The following is sample output from the **show running-config router rip** command:

```
hostname# show running-config router rip

router rip
    network 10.0.0.0
    version 2
    no auto-summary
```

Related Commands

Command	Description
clear configure router	Clears all router commands from the running configuration.
router eigrp	Enables an EIGRP routing process and enters router configuration mode for that process.
router ospf	Enables an OSPF routing process and enters router configuration mode for that process.
router rip	Enables a RIP routing process and enters router configuration mode for that process.

CHAPTER 57

show running-config same-security-traffic through show running-config xlate Commands

show running-config same-security-traffic

To display the same-security interface communication, use the **show running-config same-security-traffic** command in privileged EXEC mode.

show running-config same-security-traffic

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show running-config same-security-traffic** command:

```
hostname# show running-config same-security-traffic
```

Related Commands

Command	Description
same-security-traffic	Permits communication between interfaces with equal security levels.

show running-config service

To display the system services, use the **show running-config service** command in privileged EXEC mode.

show running-config service

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	The keyword **running-config** was added.

Examples

This command shows how to display the system services:

```
hostname# show running-config service
service resetoutside
```

Related Commands

Command	Description
service	Enables system services.

show running-config service-policy

To display all currently running service policy configurations, use the **show runnig-config service-policy** command in privileged EXEC mode.

show running-config [all] service-policy

Syntax Description

all	(Optional) Shows all service policy commands, including the commands you have not changed from the default.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output of the **show running-config service-policy** command:

```
hostname# show running-config service-policy
```

Related Commands

Command	Description
show service-policy	Displays the service policy.
service-policy	Configures service policies.
clear service-policy	Clears service policy configurations.
clear configure service-policy	Clears service policy configurations.

show running-config sla monitor

To display the SLA operation commands in the running configuration, use the **show running-config sla monitor** command in privileged EXEC mode.

show running-config sla monitor [*sla-id*]

Syntax Description

sla_id	Specifies the SLA ID for the **sla monitor** commands being displayed. Valid values are from 1 to 2147483647.

Defaults

If the *sla-id* is not specified, the **sla monitor** commands for all SLA operations are displayed.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command displays the **sla monitor** commands, associated SLA monitor configuration mode commands, and the associated **sla monitor** schedule command, if present. It does not display the **track rtr** commands in the configuration.

Examples

The following is sample output from the **show running-config sla monitor 5** command. It displays the SLA monitor configuration for the SLA operation with the SLA ID of 5:

```
hostname# show running-config sla monitor 5

sla monitor 124
 type echo protocol ipIcmpEcho 10.1.1.1 interface outside
 timeout 1000
 frequency 3
sla monitor schedule 124 life forever start-time now
```

Related Commands

Command	Description
clear configure sla monitor	Removes the **sla monitor**, and associated commands, from the running configuration.
show sla monitor configuration	Displays configuration values for the specified SLA operation.

show running-config smtps

To display the running configuration for SMPTS, use the s**how running-config smtps** command in privileged EXEC mode. To have the display include the default configuration, use the **all** keyword.

show running-config [all] smtps

Syntax Description

all	Displays the running configuration including default values.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show running-config smtps** command:

```
hostname# show running-config smtps

smtps
server 10.1.1.21
 authentication-server-group KerbSvr
 authentication aaa

hostname# show running-config all smtps

smtps
 port 995
 server 10.1.1.21
 outstanding 20
 name-separator :
 server-separator @
 authentication-server-group KerbSvr
 no authorization-server-group
 no accounting-server-group
 no default-group-policy
 authentication aaa
hostname#
```

show running-config snmp-map

To show the SNMP maps that have been configured, use the **show running-config snmp-map** command in privileged EXEC mode.

show running-config snmp-map *map_name*

Syntax Description.

map_name	Displays the configuration for the specified SNMP map.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **show running-config snmp-map** command displays the SNMP maps that have been configured.

Examples

The following is sample output from the **show running-config snmp-map** command:

```
hostname# show running-config snmp-map snmp-policy
!
snmp-map snmp-policy
deny version 1
!
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
deny version	Disallows traffic using a specific version of SNMP.
inspect snmp	Enables SNMP application inspection.
snmp-map	Defines an SNMP map and enables SNMP map configuration mode.

show running-config snmp-server

To display all currently running SNMP server configurations, use the **show runnig-config snmp-server** command in global configuration mode.

show running-config snmp-server [**default**] [**group** | **host** | **user**]

Syntax Description

default	Displays the default SNMP server configuration.
group	Displays the SNMP group configurations.
host	Displays the SNMP host configurations.
user	Displays the SNMP user configurations.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command does not display output for the **snmp-server trap** commands for the default traps; output is displayed only for the enabled, non-default traps. The **no snmp-server trap** command is also displayed for the disabled default traps.

The following is sample output from the **show running-config snmp-server** command:

```
hostname# show running-config snmp-server
snmp-server host inside 10.21.104.209 community asa1
no snmp-server location
no snmp-server contact
snmp-server enable traps snmp authentication linkup linkdown coldstart
```

Related Commands

Command	Description
snmp-server	Configures the SNMP server.
clear configure snmp-server	Clears the SNMP server configuration.
show snmp-server statistics	Displays the SNMP server configuration.

show running-config ssh

To show the SSH commands in the current configuration, use the **show running-config ssh** command in privileged EXEC mode.

show running-config [**default**] **ssh** [**timeout** | **version**]

show run [**default**] **ssh** [**timeout**]

Syntax Description

default	(Optional) Displays the default SSH configuration values along with the configured values.
timeout	(Optional) Displays the current SSH session timeout value.
version	(Optional) Displays the version of SSH currently being supported.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	The command was changed from the **show ssh** command to the **show running-config ssh** command.

Usage Guidelines

This command shows the current ssh configuration. To display only the SSH session timeout value, use the **timeout** option. To see a list of active SSH sessions, use the **show ssh sessions** command.

Examples

The following example displays the SSH session timeout:

```
hostname# show running-config timeout
ssh timeout 5 minutes
hostname#
```

Related Commands

Command	Description
clear configure ssh	Clears all SSH commands from the running configuration.
ssh	Allows SSH connectivity to the ASA from the specified client or network.

Command	Description
ssh scopy enable	Enables a secure copy server on the ASA.
ssh timeout	Sets the timeout value for idle SSH sessions.
ssh version	Restricts the ASA to using either SSH Version 1 or SSH Version 2.

show running-config ssh key-exchange

To show which (Diffie-Hellman) key-exchange method can be used for SSH sessions, use the **show running-config ssh key-exchange** command in privileged EXEC mode.

show running-config ssh key-exchange

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.4(5)	This command was introduced.

Usage Guidelines

This command shows the current SSH key exchange configuration.

Examples

The following example displays the SSH key exchange configuration:

```
hostname# show running-config ssh key-exchange
ssh key-exchange group dh-group14-sha1
hostname#
```

Related Commands

Command	Description
clear configure ssh	Clears all SSH commands from the running configuration.
ssh	Allows SSH connectivity to the ASA from the specified client or network.
ssh scopy enable	Enables a secure copy server on the ASA.
ssh timeout	Sets the timeout value for idle SSH sessions.
ssh version	Restricts the ASA to using either SSH Version 1 or SSH Version 2.

show running-config ssl

To display the current set of configured ssl commands, use the **show running-config ssl** command in privileged EXEC mode.

show running-config ssl

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show running-config ssl** command:

```
hostname# show running-config ssl
ssl server-version  tlsv1
ssl client-version tlsv1-only
ssl encryption 3des-sha1
ssl trust-point Firstcert
```

Related Commands

Command	Description
clear config ssl	Removes all ssl commands from the configuration, reverting to the default values.
ssl client-version	Specifies the SSL/TLS protocol version the ASA uses when acting as a client.
ssl server-version	Specifies the SSL/TLS protocol version the ASA uses when acting as a server
ssl trust-point	Specifies the certificate trust point that represents the SSL certificate for an interface.

show running-config static

To display all **static** commands in the configuration, use the **show running-config static** command in privileged EXEC mode.

show running-config static

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	The keyword **running-config** was added.

Usage Guidelines

This command displays the maximum connections value for the UDP protocol. If the UDP maximum connections value is “0” or not set, the limit enforcement is disabled.

Examples

This example shows how to display all static commands in the configuration:

```
hostname# show running-config static
static (inside,outside) 192.150.49.91 10.1.1.91 netmask 255.255.255.255
static (inside,outside) 192.150.49.200 10.1.1.200 netmask 255.255.255.255 tcp 255 0
```

Note No UDP value connection limit is shown.

Related Commands

Command	Description
clear configure static	Removes all the **static** commands from the configuration.
static	Configures a persistent one-to-one address translation rule by mapping a local IP address to a global IP address.

show running-config sunrpc-server

To display the information about the SunRPC configuration, use the **show running-config sunrpc-server** command in privileged EXEC mode.

show running-config sunrpc-server *interface_name ip_addr mask* **service** *service_type* **protocol** [**TCP** | **UDP**] **port** *port* [**-** *port*] **timeout** *hh:mm:ss*

Syntax Description

interface_name	Server interface.
ip_addr	Server IP address.
mask	Network mask.
port *port* **-** *port*	SunRPC protocol port range and optionally, a second port.
protocol	SunRPC transport protocol.
service	Specifies a service.
service_type	Sets the SunRPC service program type.
timeout *hh:mm:ss*	Specifies the timeout idle time after which the access for the SunRPC service traffic is closed.
TCP	(Optional) Specifies TCP.
UDP	(Optional) Specifies UDP.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The *service_type* is specified in the **sunrpcinfo** command.

Examples

The following is sample output from the **show running-config sunrpc-server** command:

```
hostname# show running-config sunrpc-server
inside 30.26.0.23 255.255.0.0 service 2147483647 protocol TCP port 2222 timeout 0:03:00
```

Related Commands

Command	Description
clear configure sunrpc-server	Clears the SunRPC services from the ASA.
debug sunrpc	Enables debug information for SunRPC.
show conn	Displays the connection state for different connection types, including SunRPC.
sunrpc-server	Creates the SunRPC services table.
timeout	Sets the maximum idle time duration for different protocols and session types, including SunRPC.

show running-config sysopt

To show the **sysopt** command configuration in the running configuration, use the **show running-config sysopt** command in privileged EXEC mode.

show running-config sysopt

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was changed from the **show sysopt** command.

Examples

The following is sample output from the **show running-config sysopt** command:

```
hostname# show running-config sysopt
no sysopt connection timewait
sysopt connection tcpmss 1200
sysopt connection tcpmss minimum 400
no sysopt nodnsalias inbound
no sysopt nodnsalias outbound
no sysopt radius ignore-secret
sysopt connection permit-ipsec
```

Related Commands

Command	Description
clear configure sysopt	Clears the **sysopt** command configuration.
sysopt connection permit-ipsec	Permits any packets that come from an IPSec tunnel without checking any ACLs for interfaces.
sysopt connection tcpmss	Overrides the maximum TCP segment size or ensures that the maximum is not less than a specified size.
sysopt connection timewait	Forces each TCP connection to linger in a shortened TIME_WAIT state after the final normal TCP close-down sequence.
sysopt nodnsalias	Disables alteration of the DNS A record address when you use the **alias** command.

show running-config tcp-map

To display the information about the TCP map configuration, use the **show running-config tcp-map** command in privileged EXEC mode.

show running-config tcp-map [*tcp_map_name*]

Syntax Description

tcp_map_name	(Optional) Text for the TCP map name; the text can be up to 58 characters in length.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show running-config tcp-map** command:

```
hostname# show running-config tcp-map
tcp-map localmap
```

Related Commands

Command	Description
tcp-map	Creates a TCP map and allows access to tcp-map configuration mode.
clear configure tcp-map	Clears the TCP map configuration.

show running-config telnet

To display the current list of IP addresses that are authorized to use Telnet connections to the ASA, use the **show running-config telnet** command in privileged EXEC mode. You can also use this command to display the number of minutes that a Telnet session can remain idle before being closed by the ASA.

show running-config telnet [**timeout**]

Syntax Description

timeout	(Optional) Displays the number of minutes that a Telnet session can be idle before being closed by the ASA.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	The keyword **running-config** was added.

Examples

This example shows how to display the current list of IP addresses that are authorized for use by Telnet connections to the ASA:

```
hostname# show running-config telnet
2003 Jul 15 14:49:36 %MGMT-5-LOGIN_FAIL:User  failed to
log in from 128.107.183.22 through Telnet
2003 Jul 15 14:50:27 %MGMT-5-LOGIN_FAIL:User  failed to log in from 128.107.183.
22 through Telnet
```

Related Commands

Command	Description
clear configure telnet	Removes the Telnet connection from the configuration.
telnet	Adds Telnet access to the console and sets the idle timeout.

show running-config terminal

To display the current terminal settings, use the **show running-config terminal** command in privileged EXEC mode.

show running-config terminal

Syntax Description

This command has no arguments or keywords.

Defaults

The default display width is 80 columns.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example clears the page length setting:

```
hostname# show running-config terminal

Width = 80, no monitor
```

Related Commands

Command	Description
clear configure terminal	Clears the terminal display width setting.
terminal	Sets the terminal line parameters.
terminal width	Sets the terminal display width.

show running-config tftp-server

To display the default TFTP server address and directory, use the **show running-config tftp-server** command in global configuration mode.

show running-config tftp-server

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	The **running-config** keyword was added.

Examples

This example shows how to display the IP/IPv6 address of the default TFTP server and the directory of the configuration file:

```
hostname(config)# show running-config tftp-server
tftp-server inside 10.1.1.42 /temp/config/test_config
```

Related Commands

Command	Description
configure net	Loads the configuration from the TFTP server and path you specify.
tftp-server	Configures the default TFTP server address and the directory of the configuration file.

show running-config threat-detection

To view the threat detection configuration, use the **show running-config threat-detection** command in privileged EXEC mode.

show running-config [**all**] **threat-detection** [**basic-threat** | **rate** | **scanning-threat** | **statistics** [**tcp-intercept**]]

Syntax Description

all	(Optional) Shows all threat detection commands, including the commands you have not changed from the default. For example, you can view the default rate limits for the **threat-detection basic-threat** command.
basic-threat	(Optional) Shows the basic threat configuration.
rate	(Optional) Shows the rate configuration.
scanning-threat	(Optional) Shows the scanning threat configuration.
statistics	(Optional) Shows the statistics configuration.
tcp-intercept	(Optional) Shows the statistics configuration for TCP Intercept.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.
8.0(4)	The **tcp-intercept** keyword was added.

Examples

The following is sample output from the **show running-config all threat-detection** command, which shows the default rate limits for the **threat-detection basic-threat** command:

```
hostname# show running-config all threat-detection
threat-detection basic-threat
threat-detection rate dos-drop rate-interval 600 average-rate 100 burst-rate 400
threat-detection rate dos-drop rate-interval 3600 average-rate 100 burst-rate 400
threat-detection rate bad-packet-drop rate-interval 600 average-rate 100 burst-rate 400
threat-detection rate bad-packet-drop rate-interval 3600 average-rate 100 burst-rate 400
threat-detection rate acl-drop rate-interval 600 average-rate 400 burst-rate 800
threat-detection rate acl-drop rate-interval 3600 average-rate 400 burst-rate 800
threat-detection rate conn-limit-drop rate-interval 600 average-rate 100 burst-rate 400
threat-detection rate conn-limit-drop rate-interval 3600 average-rate 100 burst-rate 400
threat-detection rate icmp-drop rate-interval 600 average-rate 100 burst-rate 400
```

```
threat-detection rate icmp-drop rate-interval 3600 average-rate 100 burst-rate 400
threat-detection rate scanning-drop rate-interval 600 average-rate 5 burst-rate 10
threat-detection rate scanning-drop rate-interval 3600 average-rate 5 burst-rate 10
threat-detection rate syn-attack rate-interval 600 average-rate 100 burst-rate 200
threat-detection rate syn-attack rate-interval 3600 average-rate 100 burst-rate 200
threat-detection rate fw-drop rate-interval 600 average-rate 400 burst-rate 1600
threat-detection rate fw-drop rate-interval 3600 average-rate 400 burst-rate 1600
threat-detection rate inspect-drop rate-interval 600 average-rate 400 burst-rate 1600
threat-detection rate inspect-drop rate-interval 3600 average-rate 400 burst-rate 1600
threat-detection rate interface-drop rate-interval 600 average-rate 2000 burst-rate 8000
threat-detection rate interface-drop rate-interval 3600 average-rate 2000 burst-rate 8000
threat-detection scanning-threat shun duration 3600
threat-detection statistics
threat-detection statistics tcp-intercept rate-interval 30 burst-rate 400 average-rate 200
```

Related Commands

Command	Description
clear threat-detection rate	Clears basic threat detection statistics.
show threat-detection rate	Shows basic threat detection statistics.
threat-detection basic-threat	Enables basic threat detection.
threat-detection rate	Sets the threat detection rate limits per event type.
threat-detection scanning-threat	Enables scanning threat detection.

show running-config timeout

To display the timeout value of all protocols, or just a specific one, use the **show running-config timeout** command in privileged EXEC mode.

show running-config timeout *protocol*

Syntax Description

protocol	(Optional) Displays the timeout value of the specified protocol. Supported protocols are: **xlate**, **conn, udp**, **icmp**, **rpc**, **h323**, **h225**, **mgcp**, **mgcp-pat**, **sip**, **sip_media**, and **uauth**.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	The **running-config** and **mgcp-pat** keywords were added.

Examples

This example shows how to display the timeout values for the system:

```
hostname(config)# show timeout
timeout xlate 3:00:00
timeout conn 1:00:00 half-closed 0:10:00 udp 0:02:00 icmp 0:00:02 rpc 0:10:00 h3
23 0:05:00 h225 1:00:00 mgcp 0:05:00 mgcp-pat 0:05:00 sip 0:30:00 sip_media 0:02
:00
timeout uauth 0:00:00 absolute
```

Related Commands

Command	Description
clear configure timeout	Restores the default idle time durations.
timeout	Sets the maximum idle time duration.

show running-config tls-proxy

To display all currently running TLS proxy configurations, use the **show running-config tls-proxy** command in privileged EXEC mode.

show running-config [**all**] **tls-proxy** [*proxy_name*]

Syntax Description

all	Shows all TLS proxy commands, including the commands you have not changed from the default.
proxy_name	Specifies the name of the TLS proxy to show.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Examples

The following is sample output of the **show running-config all tls-proxy** command:

```
hostname# show running-config tls-proxy
tls-proxy proxy
    server trust-point local_ccm
    client ldc issuer ldc_signer
    client ldc key-pair phone_common
    no client cipher-suite
```

Related Commands

Command	Description
client	Defines a cipher suite and sets the local dynamic certificate issuer or keypair.
ctl-provider	Defines a CTL provider instance and enters provider configuration mode.
show tls-proxy	Shows all TLS proxies.
tls-proxy	Defines a TLS proxy instance and sets the maximum sessions.

show running-config track

To display **track rtr** commands in the running configuration, use the **show running-config track** command in privileged EXEC mode.

show running-config track [*track-id*]

Syntax Description

track-id	(Optional) Limits the display to the **track rtr** command with the specified tracking object ID.

Defaults

If the *track-id* is not specified, all **track rtr** commands in the running configuration are shown.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following is sample output from the **show running-config track** command:

```
hostname# show running-config track 5

track 5 rtr 124 reachability
```

Related Commands

Command	Description
clear configure track	Removes the **track rtr** commands from the running configuration.
show track	Displays information about the objects being tracked.
track rtr	Creates a tracking entry to poll the SLA.

show running-config tunnel-group

To display tunnel group information about all or a specified tunnel group and tunnel-group attributes, use the **show running-config tunnel-group** command in global configuration or privileged EXEC mode.

show running-config [**all**] **tunnel-group** [*name* [**general-attributes | ipsec-attributes | ppp-attributes**]]

Syntax Description

all	[Optional] Displays all tunnel-group commands, including the commands you have not changed from the default.
general-attributes	Displays configuration information for general attributes.
ipsec-attributes	Displays configuration information for IPSec attributes.
name	Specifies the name of the tunnel group.
ppp-attributes	Displays configuration information for PPP attributes.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•		•		
Privileged EXEC	•		•		

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example entered in global configuration mode, displays the current configuration for all tunnel groups:

```
hostname(config)# show running-config tunnel-group
tunnel-group 209.165.200.225 type IPSec_L2L
tunnel-group 209.165.200.225 ipsec-attributes
    pre-shared-key xyzx
hostname(config)#
```

Related Commands

Command	Description
clear configure tunnel-group	Removes tunnel-group configuration
tunnel-group general-attributes	Enters subconfiguration mode for specifying general attributes for specified tunnel group.
tunnel-group ipsec-attributes	Enters subconfiguration mode for specifying IPSec attributes for specified tunnel group.
tunnel-group	Enters tunnel-group subconfiguration mode for the specified type.

show running-config url-block

To show the configuration for buffers and memory allocation used by URL filtering, use the **show running-config url-block** command in privileged EXEC mode.

show running-config url-block [**block** | **url-mempool** | **url-size**]

Syntax Description

block	Displays the configuration for the maximum number of blocks that will be buffered.
url-mempool	Displays the configuration for the maximum allow URL size (in KB).
url-size	Displays the configuration for the memory resource (in KB) allocated for the long URL buffer.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **show running-config url-block** command displays the configuration for buffers and memory allocation used by URL filtering.

Examples

The following is sample output from the **show running-config url-block** command:

```
hostname# show running-config url-block
!
url-block block 56
!
```

Related Commands

Commands	Description
clear url-block block statistics	Clears the block buffer usage counters.
show url-block	Displays information about the URL cache, which is used for buffering URLs while waiting for responses from an N2H2 or Websense filtering server.
url-block	Manage the URL buffers used for web server responses.
url-cache	Enables URL caching while pending responses from an N2H2 or Websense server and sets the size of the cache.
url-server	Identifies an N2H2 or Websense server for use with the **filter** command.

show running-config url-cache

To show the cache configuration used by URL filtering, use the **show running-config url-cache** command in privileged EXEC mode.

show running-config url-cache

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **show running-config url-cache** command displays the cache configuration used by URL filtering.

Examples

The following is sample output from the **show running-config url-cache** command:

```
hostname# show running-config url-cache
!
url-cache src_dst 128
!
```

Related Commands

Commands	Description
clear url-cache statistics	Removes **url-cache** command statements from the configuration.
filter url	Directs traffic to a URL filtering server.
show url-cache statistics	Displays information about the URL cache, which is used for buffering URLs while waiting for responses from an N2H2 or Websense filtering server.
url-cache	Enables URL caching while pending responses from an N2H2 or Websense server and sets the size of the cache.
url-server	Identifies an N2H2 or Websense server for use with the **filter** command.

show running-config url-server

To show the URL filtering server configuration, use the **show running-config url-server** command in privileged EXEC mode.

show running-config url-server

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **show running-config url-server** command displays the URL filtering server configuration.

Examples

The following is sample output from the **show running-config url-server** command:

```
hostname# show running-config url-server
!
url-server (perimeter) vendor websense host 10.0.1.1
!
```

Related Commands

Commands	Description
clear url-server	Clears the URL filtering server statistics.
show url-server	Displays information about the URL cache, which is used for buffering URLs while waiting for responses from an N2H2 or Websense filtering server.
url-block	Manages the URL buffers used for web server responses while waiting for a filtering decision from the filtering server.
url-cache	Enables URL caching while pending responses from an N2H2 or Websense server and sets the size of the cache.
url-server	Identifies an N2H2 or Websense server for use with the **filter** command.

show running-config user-identity

To display the configuration for the Identity Firewall, use the **user-identity poll-import-user-group-timer** command in global configuration mode. To remove the timer, use the **no** form of this command.

show running-config user-identity [**ad-agent** | **logout-probe** | **action** | **default-domain** | **domain** *domain_nickname*]

Syntax Description

action	Displays the configuration for the following Identity Firewall actions configured by the following commands: • **user-identity action ad-agent-down** • **user-identity action domain-controller-down** • **user-identity action mac-address-mismatch** • **user-identity action netbios-response-fail**
ad-agent	Displays all configuration for the Active Directory Agent configured for the Identity Firewall.
domain_nickname	Displays the configuration for the domain specified by the *domain_nickname* argument.
default-domain	Specifies the configuration for the Identity Firewall default domain. You configure the default domain by entering the **user-identity default-domain** command.
domain	Displays all domains configured for the Identity Firewall.
logout-probe	Displays all configuration for the logout probe configured for the Identity Firewall. When NetBIOS probing is enabled for the Identity Firewall, the ASA probes the user client IP address to determine whether the client is still active. By default, NetBIOS probing is disabled.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Examples

The following example displays the configuration for the Active Directory Agent configured for the Identity Firewall:

```
hostname(config)# show running-config user-identity ad-agent
```

Related Commands

Command	Description
clear configure user-identity	Clears the configuration for the Identity Firewall feature.

show running-config username

To display the running configuration for a particular user, use the **show running-config username** command in privileged EXEC mode with the username appended. To display the running configuration for all users, use this command without a username.

show running-config [**all**] **username** [*name*] [**attributes**]]

Syntax Description

attributes	Displays the specific AVPs for the user(s)
all	(Optional) Displays all username commands, including the commands that you have not changed from the default settings.
name	Provides the name of the user.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•	—	—
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.4.4(1)	The output for the **show running-config all username** command was updated to add password date information.

Examples

The following is sample output from the **show the running-config username** command for a user named anyuser:

```
hostname# show running-config username anyuser
username anyuser password .8T1d6ik58/lzXS5 encrypted privilege 3
username anyuser attributes
vpn-group-policy DefaultGroupPolicy
vpn-idle-timeout 10
vpn-session-timeout 120
vpn-tunnel-protocol IPSec
```

Related Commands

Command	Description
clear config username	Clears the username database.
username	Adds a user to the ASA database.
username attributes	Lets you configure attributes for specific users.

show running-config virtual

To display the IP address of the ASA virtual server, use the **show running-config virtual** command in privileged EXEC mode.

show running-config [**all**] **virtual**

Syntax Description

all	Display the virtual server IP address of all virtual servers.

Defaults

Omitting the **all** keyword displays the explicitly configured IP address of the current virtual server or servers.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was modified to conform to CLI guidelines.

Usage Guidelines

You must be in privileged EXEC mode to use this command.

Examples

This example displays the **show running-config virtual** command output for a situation in which there is a previously configured HTTP virtual server:

```
hostname(config)# show running-config virtual
virtual http 192.168.201.1
```

Related Commands

Command	Description
clear configure virtual	Removes **virtual** command statements from the configuration.
virtual	Displays the address for authentication virtual servers.

show running-config vpn load-balancing

To display the current VPN load-balancing virtual cluster configuration, use the **show running-config vpn-load-balancing** command in global configuration, privileged EXEC or VPN load-balancing mode.

show running-config [**all**] **vpn load-balancing**

Syntax Description

all	Display both the default and the explicitly configured VPN load-balancing configuration.

Defaults

Omitting the **all** keyword displays the explicitly configured VPN load-balancing configuration.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	—	•	—	—
Privileged EXEC	•	—	•	—	—
Vpn load-balancing	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **show running-config vpn load-balancing** command also displays configuration information for the following related commands: **cluster encryption**, **cluster ip address**, **cluster key**, **cluster port**, **nat**, **participate**, and **priority**.

Examples

This example displays **show running-config vpn load-balancing** command and its output, with the **all** option enabled:

```
hostname(config)# show running-config all vpn load-balancing
vpn load-balancing
 no nat
 priority 9
 interface lbpublic test
 interface lbprivate inside
 no cluster ip address
 no cluster encryption
 cluster port 9023
 no participate
```

Related Commands

Command	Description
clear configure vpn load-balancing	Removes **vpn load-balancing** command statements from the configuration.
show vpn load-balancing	Displays the VPN load-balancing runtime statistics.
vpn load-balancing	Enters vpn load-balancing mode.

show running-config webvpn

To display the running configuration for webvpn, use the s**how running-config webvpn** command in privileged EXEC mode. To have the display include the default configuration, use the **all** keyword.

show running-config [all] webvpn [apcf | auto-signon | cache | proxy-bypass | rewrite | sso-server | url-list]

Syntax Description

all	(Optional) Displays the running configuration including default values.
apcf	(Optional) Displays the running configuration for SSL VPN APCF.
auto-signon	(Optional) Displays the running configuration for SSL VPN auto sign-on.
cache	(Optional) Displays the running configuration for SSL VPN caching.
proxy-bypass	(Optional) Displays the running configuration for SSL VPN proxy bypass.
rewrite	(Optional) Displays the running configuration for SSL VPN content transformation.
sso-server	(Optional) Displays the running configuration for single sign-on.
url-list	(Optional) Displays the running configuration for SSL VPN access to URLs.

Defaults

No default behavior or values.

Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	This command was revised.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—
Global configuration	•	—	•	—	—
Webvpn	•	—	•	—	—

Examples

The following is sample output from the **show running-config webvpn** command:

```
hostname# show running-configuration webvpn
webvpn
 title WebVPN Services for ASA-4
 title-color green
 default-idle-timeout 0
 nbns-server 10.148.1.28 master timeout 2 retry 2
```

```
 accounting-server-group RadiusACS1
 authentication-server-group RadiusACS2
 authorization-dn-attributes CN
```

The following is sample output from the **show running-config all webvpn** command:

```
hostname#(config-webvpn)# show running-config all webvpn

webvpn
 title WebVPN Services for ASA-4
 username-prompt Username
 password-prompt Password
 login-message Please enter your username and password
 logout-message Goodbye
 no logo
 title-color green
 secondary-color #CCCCFF
 text-color white
 secondary-text-color black
 default-idle-timeout 0
 no http-proxy
 no https-proxy
 nbns-server 10.148.1.28 master timeout 2 retry 2
 accounting-server-group RadiusACS1
 authentication-server-group RadiusACS2
 no authorization-server-group
 default-group-policy DfltGrpPolicy
 authentication aaa
 no authorization-required
 authorization-dn-attributes CN
hostname#
```

The following is sample output from the **show running-config webvpn sso-server** command:

```
hostname#(config-webvpn)# show running-config webvpn sso-server
sso-server
sso-server bxbsvr type siteminder
web-agent-url http://bxb-netegrity.demo.com/vpnauth/
policy-server-secret cisco1234
sso-server policysvr type siteminder
web-agent-url http://webagent1.mysiteminder.com/ciscoauth/
policy-server-secret Cisco1234
max-retry-attempts 4
request-timeout 10
hostname#(config-webvpn)#
```

Related Commands

Command	Description
clear configure webvpn	Removes all nondefault SSL VPN configuration attributes.
debug webvpn	Displays debug information about SSL VPN sessions.
show webvpn	Displays statistics about SSL VPN sessions.

show running-config webvpn auto-signon

To display all WebVPN auto-signon assignments in the running configuration, use the **show running-config webvpn auto-signon** command in global configuration mode.

show running-config webvpn auto-signon

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Examples

The following is sample output from the **show running-config webvpn auto-signon**:

```
hostname(config)# webvpn
hostname(config-webvpn)# auto-signon allow ip 10.1.1.0 255.255.255.0 auth-type ntlm
hostname(config-webvpn)# auto-signon allow uri *.example.com/* auth-type basic
hostname(config-webvpn)# show running-config webvpn auto-signon
auto-signon allow ip 10.1.1.0 255.255.255.0 auth-type ntlm
auto-signon allow uri *.example.com/* auth-type basic
```

Related Commands

auto-signon	Configures the ASA to automatically pass WebVPN login credentials to internal servers.

show running-config zonelabs-integrity

To display the Zone Labs Integrity Server configuration, use the **show running-config zonelabs-integrity** command in privileged EXEC mode.

show running-config [**all**] **zonelabs-integrity**

Syntax Description

all	(Optional) Shows the running configuration including default configuration values.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	—	—	•

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

Use this command to display the addresses of all Zone Labs Integrity Servers and the configured values for the active Zone Labs Integrity Server. Use the **all** parameter to display the default as well as the explicitly configured values.

Examples

The following is sample output from the **show running-config zonelabs-integrity** command:

```
hostname# show running-config zonelabs-integrity
zonelabs-integrity server-address 10.0.9.1 10.0.9.2
zonelabs-integrity port 300
hostname#
```

The following is sample output from the **show running-config all zonelabs-integrity** command:

```
hostname# show running-config all zonelabs-integrity
zonelabs-integrity server-address 10.0.9.1 10.0.9.2
zonelabs-integrity port 300
zonelabs-integrity interface none
zonelabs-integrity fail-open
zonelabs-integrity fail-timeout 10
zonelabs-integrity ssl-client-authentication disable
zonelabs-integrity ssl-certificate-port 80
hostname#
```

Related Commands

Command	Description
clear configure zonelabs-integrity	Clears the Zone Labs Integrity Server configuration.

show running-config vpdn

To display the VPDN configuration used for PPPoE connections, use the **show running-config vpdn** command in privileged EXEC mode:

show running-config vpdn

Syntax Description

This command has no arguments or keywords.

Defaults

This command has no default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

Thie following is sample output from the **show running-config vpdn** command:

```
hostname# show running-config vpdn
vpdn group telecommuters ppp authentication mschap
vpdn username tomm password ********* store-local
```

Related Commands

Command	Description
show running-config vpdn group	Shows the current configuration for the VPDN group.
show running-config vpdn username	Shows the current configuration for vpdn usernames.

show running-configuration vpn-sessiondb

To display the current set of configured vpnsessiondb commands, use the **show running-configuration vpn-sessiondb** command in privileged EXEC mode.

show running-configuration [all] vpn-sessiondb

Syntax Description

all	(Optional) Displays all **vpn-sessionddb** commands, including the commands you have not changed from the default

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

As of Release 7.0, this command displays only the VPN maximum sessions limit, if configured.

Examples

The following is sample output for the **show running-configuration vpn-sessiondb** command:

```
hostname# show running-configuration vpn-sessiondb
```

Related Commands

Command	Description
show vpn-sessiondb	Displays sessions with or without extended details, optionally filtered and sorted by criteria you specify.
show vpn-sessiondb summary	Displays a session summary, including total current session, current sessions of each type, peak and total cumulative, maximum concurrent sessions

show running-config wccp

To show the WCCP configuration in the running configuration, use the **show running-config wccp** command in privileged EXEC mode.

show [**all**] **running-config wccp**

Syntax Description

all	Displays the default and explicitly configured configuration information for one or all WCCP commands.

Defaults

This command has no arguments or keywords.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following is sample output from the **show running-config wccp** command:

```
hostname# show running-config wccp
wccp web-cache redirect-list wooster group-list jeeves password whatho
hostname#
```

Related Commands

Command	Description
wccp	Enables support of WCCP.
wccp redirect	Enters support of WCCP redirection.

show running-config xlate

To show the **xlate per-session** rules, use the **show running-config xlate** command in global configuration mode.

show running-config [**all**] **xlate**

Syntax Description

all	(Optional) Shows the running configuration, including default configuration values.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

Use the **clear configure xlate** command to clear the **xlate per-session** configuration.

Examples

The following is sample output from the **show running-config xlate** and **show running-config all xlate** commands:

```
hostname(config)# show running-config xlate
hostname(config)# show running-config all xlate
xlate per-session permit tcp any4 any4
xlate per-session permit tcp any4 any6
xlate per-session permit tcp any6 any4
xlate per-session permit tcp any6 any6
xlate per-session permit udp any4 any4 eq domain
xlate per-session permit udp any4 any6 eq domain
xlate per-session permit udp any6 any4 eq domain
xlate per-session permit udp any6 any6 eq domain
```

Related Commands

Command	Description
clear configure xlate	Clears the **xlate per-session** rules.
nat (global)	Adds a twice NAT rule.

Command	Description
nat (object)	Adds an object NAT rule.
xlate per-session	Adds a per-session PAT rule.

CHAPTER 58

show scansafe through show switch vlan Commands

show scansafe server

To show the status of the Cloud Web Security proxy servers, use the **show scansafe server** command in privileged EXEC mode.

show scansafe server

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

This command shows the status of the server, whether it is the current active server, the backup server, or unreachable.

Examples

The following is sample output from the **show scansafe server** command:

```
hostname# show scansafe server
hostname# Primary: proxy197.scansafe.net (72.37.244.115) (REACHABLE)*
hostname# Backup: proxy137.scansafe.net (80.254.152.99)
```

Related Commands

Command	Description
class-map type inspect scansafe	Creates an inspection class map for whitelisted users and groups.
default user group	Specifies the default username and/or group if the ASA cannot determine the identity of the user coming into the ASA.
http[**s**] (parameters)	Specifies the service type for the inspection policy map, either HTTP or HTTPS.
inspect scansafe	Enables Cloud Web Security inspection on the traffic in a class.

Command	Description
license	Configures the authentication key that the ASA sends to the Cloud Web Security proxy servers to indicate from which organization the request comes.
match user group	Matches a user or group for a whitelist.
policy-map type inspect scansafe	Creates an inspection policy map so you can configure essential parameters for the rule and also optionally identify the whitelist.
retry-count	Enters the retry counter value, which is the amount of time that the ASA waits before polling the Cloud Web Security proxy server to check its availability.
scansafe	In multiple context mode, allows Cloud Web Security per context.
scansafe general-options	Configures general Cloud Web Security server options.
server {**primary** | **backup**}	Configures the fully qualified domain name or IP address of the primary or backup Cloud Web Security proxy servers.
show conn scansafe	Shows all Cloud Web Security connections, as noted by the capitol Z flag.
show scansafe statistics	Shows total and current http connections.
user-identity monitor	Downloads the specified user or group information from the AD agent.
whitelist	Performs the whitelist action on the class of traffic.

show scansafe statistics

To show information about Cloud Web Security activity, use the **show scansafe statistics** command in privileged EXEC mode.

show scansafe statistics

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

The **show scansafe statistics** command shows information about Cloud Web Security activity, such as the number of connections redirected to the proxy server, the number of current connections being redirected, and the number of whitelisted connections.

Examples

The following is sample output from the **show scansafe statistics** command:

```
hostname# show scansafe statistics
Current HTTP sessions : 0
Current HTTPS sessions : 0
Total HTTP Sessions : 0
Total HTTPS Sessions : 0
Total Fail HTTP sessions : 0
Total Fail HTTPS sessions : 0
Total Bytes In : 0 Bytes
Total Bytes Out : 0 Bytes
HTTP session Connect Latency in ms(min/max/avg) : 0/0/0
HTTPS session Connect Latency in ms(min/max/avg) : 0/0/0
```

Related Commands

Command	Description
class-map type inspect scansafe	Creates an inspection class map for whitelisted users and groups.
default user group	Specifies the default username and/or group if the ASA cannot determine the identity of the user coming into the ASA.
http[**s**] (parameters)	Specifies the service type for the inspection policy map, either HTTP or HTTPS.
inspect scansafe	Enables Cloud Web Security inspection on the traffic in a class.
license	Configures the authentication key that the ASA sends to the Cloud Web Security proxy servers to indicate from which organization the request comes.
match user group	Matches a user or group for a whitelist.
policy-map type inspect scansafe	Creates an inspection policy map so you can configure essential parameters for the rule and also optionally identify the whitelist.
retry-count	Enters the retry counter value, which is the amount of time that the ASA waits before polling the Cloud Web Security proxy server to check its availability.
scansafe	In multiple context mode, allows Cloud Web Security per context.
scansafe general-options	Configures general Cloud Web Security server options.
server {**primary** | **backup**}	Configures the fully qualified domain name or IP address of the primary or backup Cloud Web Security proxy servers.
show conn scansafe	Shows all Cloud Web Security connections, as noted by the capitol Z flag.
show scansafe server	Shows the status of the server, whether it's the current active server, the backup server, or unreachable.
user-identity monitor	Downloads the specified user or group information from the AD agent.
whitelist	Performs the whitelist action on the class of traffic.

show service-policy

To display the service policy statistics, use the **show service-policy** command in privileged EXEC mode.

show service-policy [**global** | **interface** *intf*] [**csc** | **cxsc** | **inspect** *inspection* [*arguments*] | **ips** | **police** | **priority** | **set connection** [**details**] | **shape** | **user-statistics**]

show service-policy [**global** | **interface** *intf*] [**flow** *protocol* {**host** *src_host* | *src_ip src_mask*} [**eq** *src_port*] {**host** *dest_host* | *dest_ip dest_mask*} [**eq** *dest_port*] [*icmp_number* | *icmp_control_message*]]

Syntax Description

csc	(Optional) Shows detailed information about policies that include the **csc** command.
cxsc	(Optional) Shows detailed information about policies that include the **cxsc** command.
dest_ip dest_mask	For the **flow** keyword, the destination IP address and netmask of the traffic flow.
details	(Optional) For the **set connection** keyword, displays per-client connection information, if a per-client connection limit is enabled.
eq *dest_port*	(Optional) For the **flow** keyword, equals the destination port for the flow.
eq *src_port*	(Optional) For the **flow** keyword, equals the source port for the flow.
flow *protocol*	(Optional) Shows policies that match a particular flow identified by the 5-tuple (protocol, source IP address, source port, destination IP address, destination port). You can use this command to check that your service policy configuration will provide the services you want for specific connections. Because the flow is described as a 5-tuple, not all policies are supported. See the following supported policy matches: • **match access-list** • **match port** • **match rtp** • **match default-inspection-traffic**
global	(Optional) Limits output to the global policy.
host *dest_host*	For the **flow** keyword, the host destination IP address of the traffic flow.
host *src_host*	For the **flow** keyword, the host source IP address of the traffic flow.
icmp_control_message	(Optional) For the **flow** keyword when you specify ICMP as the protocol, specifies an ICMP control message of the traffic flow.
icmp_number	(Optional) For the **flow** keyword when you specify ICMP as the protocol, specifies the ICMP protocol number of the traffic flow.
inspect *inspection* [*arguments*]	(Optional) Shows detailed information about policies that include an **inspect** command. Not all **inspect** commands are supported for detailed output. To see all inspections, use the **show service-policy** command without any arguments. The arguments available for each inspection vary; see the CLI help for more information.

interface *intf*	(Optional) Displays policies applied to the interface specified by the *intf* argument, where *intf* is the interface name given by the **nameif** command.
ips	(Optional) Shows detailed information about policies that include the **ips** command.
police	(Optional) Shows detailed information about policies that include the **police** command.
priority	(Optional) Shows detailed information about policies that include the **priority** command.
set connection	(Optional) Shows detailed information about policies that include the **set connection** command.
shape	(Optional) Shows detailed information about policies that include the **shape** command.
src_ip src_mask	For the **flow** keyword, the source IP address and netmask used in the traffic flow.
user-statistics	(Optional) Shows detailed information about policies that include the **user-statistics** command. This command displays user statistics for the Identify Firewall, including sent packet count, sent drop count, received packet count, and send drop count for selected users.

Defaults

If you do not specify any arguments, this command shows all global and interface policies.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	The **csc** keyword was added.
7.2(4)/8.0(4)	The **shape** keyword was added.
8.4(2)	We added support for the **user-statistics** keyword for the Identity Firewall.
8.4(4.1)	We added support for the **cxsc** keyword for the ASA CX module.

Usage Guidelines

The number of embryonic connections displayed in the **show service-policy** command output indicates the current number of embryonic connections to an interface for traffic matching that defined by the **class-map** command. The “embryonic-conn-max” field shows the maximum embryonic limit configured for the traffic class using the Modular Policy Framework. If the current embryonic connections displayed equals or exceeds the maximum, TCP intercept is applied to new TCP connections that match the traffic type defined by the **class-map** command.

When you make service policy changes to the configuration, all *new* connections use the new service policy. Existing connections continue to use the policy that was configured at the time of the connection establishment. **show** command output will not include data about the old connections. For example, if you remove a QoS service policy from an interface, then re-add a modified version, then the **show service-policy** command only displays QoS counters associated with new connections that match the new service policy; existing connections on the old policy no longer show in the command output. To ensure that all connections use the new policy, you need to disconnect the current connections so they can reconnect using the new policy. See the **clear conn** or **clear local-host** commands.

Note For an **inspect icmp** and **inspect icmp error** policies, the packet counts only include the echo request and reply packets.

Examples

The following is sample output from the **show service-policy global** command:

```
hostname# show service-policy global

Global policy:
  Service-policy: inbound_policy
    Class-map: ftp-port
      Inspect: ftp strict inbound_ftp, packet 0, drop 0, reset-drop 0
```

The following is sample output from the **show service-policy priority** command:

```
hostname# show service-policy priority

Interface outside:

Global policy:
  Service-policy: sa_global_fw_policy

Interface outside:
  Service-policy: ramap
    Class-map: clientmap
      Priority:
        Interface outside: aggregate drop 0, aggregate transmit 5207048
    Class-map: udpmap
      Priority:
        Interface outside: aggregate drop 0,  aggregate transmit 5207048
    Class-map: cmap
```

The following is sample output from the **show service-policy flow** command:

```
hostname# show service-policy flow udp host 209.165.200.229 host 209.165.202.158 eq 5060

Global policy:
  Service-policy: f1_global_fw_policy
    Class-map: inspection_default
      Match: default-inspection-traffic
      Action:
        Input flow:  inspect sip

Interface outside:
  Service-policy: test
    Class-map: test
      Match: access-list test
        Access rule: permit ip 209.165.200.229 255.255.255.224 209.165.202.158
255.255.255.224
      Action:
        Input flow:  ids inline
```

```
        Input flow:  set connection conn-max 10 embryonic-conn-max 20
```

The following is sample output from the **show service-policy inspect http** command. This example shows the statistics of each match command in a match-any class map.

```
hostname# show service-policy inspect http

Global policy:
  Service-policy: global_policy
    Class-map: inspection_default
      Inspect: http http, packet 1916, drop 0, reset-drop 0
        protocol violations
          packet 0
        class http_any (match-any)
          Match: request method get, 638 packets
          Match: request method put, 10 packets
          Match: request method post, 0 packets
          Match: request method connect, 0 packets
          log, packet 648
```

The following is sample output from the **show service-policy inspect waas** command. This example shows the waas statistics.

```
hostname# show service-policy inspect waas

Global policy:
  Service-policy: global_policy
    Class-map: WAAS
      Inspect: waas, packet 12, drop 0, reset-drop 0
        SYN with WAAS option 4
        SYN-ACK with WAAS option 4
        Confirmed WAAS connections 4
        Invalid ACKs seen on WAAS connections 0
        Data exceeding window size on WAAS connections 0
```

The following is sample output from the **show gtp requests** command:

```
hostname# show gtp requests
0 in use, 0 most used, 200 maximum allowed
```

You can use the vertical bar | to filter the display, as in the following example:

```
hostname# show service-policy gtp statistics | grep gsn
```

This example shows the GTP statistics with the word gsn in the output.

The following command shows the statistics for GTP inspection:

```
hostname# show service-policy inspect gtp statistics
GPRS GTP Statistics:
  version_not_support | 0 | msg_too_short | 0
  unknown_msg | 0 | unexpected_sig_msg | 0
  unexpected_data_msg | 0 | ie_duplicated | 0
  mandatory_ie_missing | 0 | mandatory_ie_incorrect | 0
  optional_ie_incorrect | 0 | ie_unknown | 0
  ie_out_of_order | 0 | ie_unexpected | 0
  total_forwarded | 0 | total_dropped | 0
  signalling_msg_dropped | 0 | data_msg_dropped | 0
  signalling_msg_forwarded | 0 | data_msg_forwarded | 0
  total created_pdp | 0 | total deleted_pdp | 0
  total created_pdpmcb | 0 | total deleted_pdpmcb | 0
  pdp_non_existent | 0
```

Table 58-1 describes each column of the output from the **show service-policy inspect gtp statistics** command.

Table 58-1 GPRS GTP Statistics

Column Heading	Description
version_not_support	Displays packets with an unsupported GTP version field.
msg_too_short	Displays packets less than 8 bytes in length.
unknown_msg	Displays unknown type messages.
unexpected_data_msg	Displays unexpected data messages.
mandatory_ie_missing	Displays messages missing a mandatory Information Element (IE).
mandatory_ie_incorrect	Displays messages with an incorrectly formatted mandatory Information Element (IE).
optional_ie_incorrect	Displays messages with an incorrectly formatted optional Information Element (IE).
ie_unknown	Displays messages with an unknown Information Element (IE).
ie_out_of_order	Displays messages with out-of-sequence Information Elements (IEs).
ie_unexpected	Displays messages with an unexpected Information Element (IE).
total_forwarded	Displays the total messages forwarded.
total_dropped	Displays the total messages dropped.
signalling_msg_dropped	Displays the signaling messages dropped.
data_msg_dropped	Displays the data messages dropped.
signalling_msg_forwarded	Displays the signaling messages forwarded.
data_msg_forwarded	Displays the data messages forwarded.
total created_pdp	Displays the total Packet Data Protocol (PDP) contexts created.
total deleted_pdp	Displays the total Packet Data Protocol (PDP) contexts deleted.
total created_pdpmcb	Displays the total PDPMCB sessions created.
total deleted_pdpmcb	Displays the total PDPMCB sessions deleted.
pdp_non_existent	Displays the messages received for a non-existent PDP context.

The following command displays information about the PDP contexts:

```
hostname# show service-policy inspect gtp pdp-context
1 in use, 1 most used, timeout 0:00:00

Version TID | MS Addr | SGSN Addr | Idle | APN
v1 | 1234567890123425 | 1.1.1.1 | 11.0.0.2 0:00:13  gprs.cisco.com
```

```
| user_name (IMSI): 214365870921435 | MS address: | 1.1.1.1
| primary pdp: Y | nsapi: 2
| sgsn_addr_signal: | 11.0.0.2 | sgsn_addr_data: | 11.0.0.2
| ggsn_addr_signal: | 9.9.9.9 | ggsn_addr_data: | 9.9.9.9
| sgsn control teid: | 0x000001d1 | sgsn data teid: | 0x000001d3
| ggsn control teid: | 0x6306ffa0 | ggsn data teid: | 0x6305f9fc
| seq_tpdu_up: | 0 | seq_tpdu_down: | 0
| signal_sequence: | 0
| upstream_signal_flow: | 0 | upstream_data_flow: | 0
| downstream_signal_flow: | 0 | downstream_data_flow: | 0
| RAupdate_flow: | 0
```

Table 58-2 describes each column of the output from the **show service-policy inspect gtp pdp-context** command.

Table 58-2 PDP Contexts

Column Heading	Description
Version	Displays the version of GTP.
TID	Displays the tunnel identifier.
MS Addr	Displays the mobile station address.
SGSN Addr	Displays the serving gateway service node.
Idle	Displays the time for which the PDP context has not been in use.
APN	Displays the access point name.

Related Commands

Command	Description
clear configure service-policy	Clears service policy configurations.
clear service-policy	Clears all service policy configurations.
service-policy	Configures the service policy.
show running-config service-policy	Displays the service policies configured in the running configuration.

show shared license

To show shared license statistics, use the **show shared license** command in privileged EXEC mode. Optional keywords are available only for the licensing server.

show shared license [**detail** | **client** [*hostname*] | **backup**]

Syntax Description

backup	(Optional) Shows information about the backup server.
client	(Optional) Limits the display to participants.
detail	(Optional) Shows all statistics, including per participant.
hostname	(Optional) Limits the display to a particular participant.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•		—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

To clear the statistics, enter the **clear shared license** command.

Examples

The following is sample output from the **show shared license** command on the license participant:

```
hostname# show shared license
Primary License Server : 10.3.32.20
  Version              : 1
  Status               : Inactive

Shared license utilization:
  SSLVPN:
    Total for network :     5000
    Available         :     5000
    Utilized          :        0
  This device:
    Platform limit    :      250
    Current usage     :        0
    High usage        :        0
  Messages Tx/Rx/Error:
    Registration    : 0 / 0 / 0
```

```
    Get             : 0 / 0 / 0
    Release         : 0 / 0 / 0
    Transfer        : 0 / 0 / 0

Client ID           Usage   Hostname
  ASA0926K04D         0       5510-B
```

Table 58-3 describes the output from the **show shared license** command.

Table 58-3 show shared license Description

Field	Description
Primary License Server	The IP address of the primary server.
Version	The shared license version.
Status	If the command is issued on the backup server, “Active” means that this device has taken on the role as a Primary Shared Licensing server. “Inactive” means that the device is ready in standby mode, and the device is communicating with the primary server. If failover is configured on the primary licensing server, the backup server may become “Active” for a brief moment during a failover but should return to “Inactive” after communications have synced up again.
Shared license utilization	
SSLVPN	
Total for network	Displays the total number of shared sessions available.
Available	Displays the remaining shared sessions available.
Utilized	Displays the shared sessions obtained for the active license server.
This device	
Platform limit	Displays the total number of SSL VPN sessions for this device according to the installed license.
Current usage	Displays the number of shared SSL VPN session currently owned by this device from the shared pool.
High usage	Displays the highest number of shared SSL VPN sessions ever owned by this device.
Messages Tx/Rx/Error	
Registration Get Release Transfer	Shows the Transmit, Received, and Error packets of each type of connection.
Client ID	A unique client ID.
Usage	Displays the number of sessions in use.
Hostname	Displays the hostname for this device.

The following is sample output from the **show shared license detail** command on the license server:

```
hostname# show shared license detail
Backup License Server Info:
```

```
Device ID           : ABCD
Address             : 10.1.1.2
Registered          : NO
HA peer ID          : EFGH
Registered          : NO
  Messages Tx/Rx/Error:
    Hello           : 0 / 0 / 0
    Sync            : 0 / 0 / 0
    Update          : 0 / 0 / 0

Shared license utilization:
  SSLVPN:
    Total for network :      500
    Available         :      500
    Utilized          :        0
  This device:
    Platform limit    :      250
    Current usage     :        0
    High usage        :        0
  Messages Tx/Rx/Error:
    Registration    : 0 / 0 / 0
    Get             : 0 / 0 / 0
    Release         : 0 / 0 / 0
    Transfer        : 0 / 0 / 0

Client Info:

  Hostname          : 5540-A
  Device ID         : XXXXXXXXXXX
  SSLVPN:
    Current usage   : 0
    High            : 0
  Messages Tx/Rx/Error:
    Registration    : 1 / 1 / 0
    Get             : 0 / 0 / 0
    Release         : 0 / 0 / 0
    Transfer        : 0 / 0 / 0
...
```

Related Commands

Command	Description
activation-key	Enters a license activation key.
clear configure license-server	Clears the shared licensing server configuration.
clear shared license	Clears shared license statistics.
license-server address	Identifies the shared licensing server IP address and shared secret for a participant.
license-server backup address	Identifies the shared licensing backup server for a participant.
license-server backup backup-id	Identifies the backup server IP address and serial number for the main shared licensing server.
license-server backup enable	Enables a unit to be the shared licensing backup server.
license-server enable	Enables a unit to be the shared licensing server.
license-server port	Sets the port on which the server listens for SSL connections from participants.
license-server refresh-interval	Sets the refresh interval provided to participants to set how often they should communicate with the server.

Command	Description
license-server secret	Sets the shared secret on the shared licensing server.
show activation-key	Shows the current licenses installed.
show running-config license-server	Shows the shared licensing server configuration.
show vpn-sessiondb	Shows license information about VPN sessions.

show shun

To display shun information, use the **show shun** command in privileged EXEC mode.

show shun [*src_ip* | *statistics*]

Syntax Description

src_ip	(Optional) Displays the information for that address.
statistics	(Optional) Displays the interface counters only.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.2(2)	For threat events, the severity level was changed from a warning to a notification. Threat events can be triggered every five minutes.

Examples

The following is sample output from the **show shun** command:

```
hostname# show shun
shun (outside) 10.1.1.27 10.2.2.89 555 666 6
shun (inside1) 10.1.1.27 10.2.2.89 555 666 6
```

Related Commands

Command	Description
clear shun	Disables all the shuns that are currently enabled and clears the shun statistics.
shun	Enables a dynamic response to an attacking host by preventing new connections and disallowing packets from any existing connection.

show sip

To display SIP sessions, use the **show sip** command in privileged EXEC mode.

show sip

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **show sip** command assists in troubleshooting SIP inspection engine issues and is described with the **inspect protocol sip udp 5060** command. The **show timeout sip** command displays the timeout value of the designated protocol.

The **show sip** command displays information for SIP sessions established across the ASA. Along with the **debug sip** and **show local-host** commands, this command is used for troubleshooting SIP inspection engine issues.

Note We recommend that you configure the **pager** command before using the **show sip** command. If there are a lot of SIP session records and the **pager** command is not configured, it will take a while for the **show sip** command output to reach its end.

Examples

The following is sample output from the **show sip** command:

```
hostname# show sip
Total: 2
call-id c3943000-960ca-2e43-228f@10.130.56.44
 state Call init, idle 0:00:01
call-id c3943000-860ca-7e1f-11f7@10.130.56.45
 state Active, idle 0:00:06
```

This sample shows two active SIP sessions on the ASA (as shown in the `Total` field). Each `call-id` represents a call.

The first session, with the `call-id c3943000-960ca-2e43-228f@10.130.56.44,` is in the state `Call Init`, which means the session is still in call setup. Call setup is complete only when the ACK is seen. This session has been idle for 1 second.

The second session is in the state `Active`, in which call setup is complete and the endpoints are exchanging media. This session has been idle for 6 seconds.

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
debug sip	Enables debug information for SIP.
inspect sip	Enables SIP application inspection.
show conn	Displays the connection state for different connection types.
timeout	Sets the maximum idle time duration for different protocols and session types.

show skinny

To troubleshoot SCCP (Skinny) inspection engine issues, use the **show skinny** command in privileged EXEC mode.

show skinny

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **show skinny** command assists in troubleshooting SCCP (Skinny) inspection engine issues.

Examples

The following is sample output from the **show skinny** command under the following conditions. There are two active Skinny sessions set up across the ASA. The first one is established between an internal Cisco IP Phone at local address 10.0.0.11 and an external Cisco CallManager at 172.18.1.33. TCP port 2000 is the CallManager. The second one is established between another internal Cisco IP Phone at local address 10.0.0.22 and the same Cisco CallManager.

```
hostname# show skinny

        LOCAL                   FOREIGN                 STATE

-----------------------------------------------------------------

1       10.0.0.11/52238         172.18.1.33/2000                1

  MEDIA 10.0.0.11/22948         172.18.1.22/20798

2       10.0.0.22/52232         172.18.1.33/2000                1

  MEDIA 10.0.0.22/20798         172.18.1.11/22948
```

The output indicates a call has been established between both internal Cisco IP Phones. The RTP listening ports of the first and second phones are UDP 22948 and 20798 respectively.

The following is the xlate information for these Skinny connections:

```
hostname# show xlate debug
2 in use, 2 most used
Flags: D|DNS, d|dump, I|identity, i|inside, n|no random,
|o|outside, r|portmap, s|static
NAT from inside:10.0.0.11 to outside:172.18.1.11 flags si idle 0:00:16 timeout 0:05:00
NAT from inside:10.0.0.22 to outside:172.18.1.22 flags si idle 0:00:14 timeout 0:05:00
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
debug skinny	Enables SCCP debug information.
inspect skinny	Enables SCCP application inspection.
show conn	Displays the connection state for different connection types.
timeout	Sets the maximum idle time duration for different protocols and session types.

show sla monitor configuration

To display the configuration values, including the defaults, for SLA operations, use the **show sla monitor configuration** command in user EXEC mode.

show sla monitor configuration [*sla-id*]

Syntax Description

sla-id	(Optional) The ID number of the SLA operation. Valid values are from 1 to 2147483647.

Defaults

If the *sla-id* is not specified, the configuration values for all SLA operations are shown.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
User EXEC	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

Use the **show running config sla monitor** command to see the SLA operation commands in the running configuration.

Examples

The following is sample output from the **show sla monitor** command. It displays the configuration values for SLA operation 123. Following the output of the **show sla monitor** command is the output of the **show running-config sla monitor** command for the same SLA operation.

```
hostname> show sla monitor 124

SA Agent, Infrastructure Engine-II
Entry number: 124
Owner:
Tag:
Type of operation to perform: echo
Target address: 10.1.1.1
Interface: outside
Number of packets: 1
Request size (ARR data portion): 28
Operation timeout (milliseconds): 1000
Type Of Service parameters: 0x0
Verify data: No
Operation frequency (seconds): 3
Next Scheduled Start Time: Start Time already passed
```

```
Group Scheduled : FALSE
Life (seconds): Forever
Entry Ageout (seconds): never
Recurring (Starting Everyday): FALSE
Status of entry (SNMP RowStatus): Active
Enhanced History:

hostname# show running-config sla monitor 124

sla monitor 124
 type echo protocol ipIcmpEcho 10.1.1.1 interface outside
 timeout 1000
 frequency 3
sla monitor schedule 124 life forever start-time now
```

Related Commands

Command	Description
show running-config sla monitor	Displays the SLA operation configuration commands in the running configuration.
sla monitor	Defines an SLA monitoring operation.

show sla monitor operational-state

To display the operational state of SLA operations, use the **show sla monitor operational-state** command in user EXEC mode.

show sla monitor operational-state [*sla-id*]

Syntax Description

sla-id	(Optional) The ID number of the SLA operation. Valid values are from 1 to 2147483647.

Defaults

If the *sla-id* is not specified, statistics for all SLA operations are displayed.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
User EXEC	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

Use the **show running-config sla monitor** command to display the SLA operation commands in the running configuration.

Examples

The following is sample output from the **show sla monitor operational-state** command:

```
hostname> show sla monitor operationl-state

Entry number: 124
Modification time: 14:42:23.607 EST Wed Mar 22 2006
Number of Octets Used by this Entry: 1480
Number of operations attempted: 4043
Number of operations skipped: 0
Current seconds left in Life: Forever
Operational state of entry: Active
Last time this entry was reset: Never
Connection loss occurred: FALSE
Timeout occurred: TRUE
Over thresholds occurred: FALSE
Latest RTT (milliseconds): NoConnection/Busy/Timeout
Latest operation start time: 18:04:26.609 EST Wed Mar 22 2006
Latest operation return code: Timeout
RTT Values:
RTTAvg: 0       RTTMin: 0       RTTMax: 0
```

```
NumOfRTT: 0      RTTSum: 0        RTTSum2: 0
```

Related Commands

Command	Description
show running-config sla monitor	Displays the SLA operation configuration commands in the running configuration.
sla monitor	Defines an SLA monitoring operation.

show snmp-server engineid

To display the identification of the SNMP engine that has been configured on the ASA, use the **show snmp-server engineid** command in privileged EXEC mode.

show snmp-server engineid

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Examples

The following is sample output from the **show snmp-server engineid** command:

```
hostname# show snmp-server engineid
Local SNMP engineID: 80000009fe85f8fd882920834a3af7e4ca79a0a1220fe10685
```

Usage Guidelines

An SNMP engine is a copy of SNMP that can reside on a local device. The engine ID is a unique value that is assigned for each SNMP agent for each ASA context. The engine ID is not configurable on the ASA. The engine ID is 25 bytes long, and is used to generate encrypted passwords. The encrypted passwords are then stored in flash memory. The engine ID can be cached. In a failover pair, the engine ID is synchronized with the peer.

Related Commands

Command	Description
clear configure snmp-server	Clears the SNMP server configuration.
show running-config snmp-server	Displays the SNMP server configuration.
snmp-server	Configures the SNMP server.

show snmp-server group

To display the names of configured SNMP groups, the security model being used, the status of different views, and the storage type of each group, use the **show snmp-server group** command in privileged EXEC mode.

show snmp-server group

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Examples

The following is sample output from the **show snmp-server group** command:

```
hostname# show snmp-server group
groupname: public                           security model:v1
readview : <no readview specified>          writeview: <no writeview specified>
notifyview: <no readview specified>
row status: active

groupname: public                           security model:v2c
readview : <no readview specified>          writeview: <no writeview specified>
notifyview: *<no readview specified>
row status: active

groupname: privgroup                    security model:v3 priv
readview : def_read_view                writeview: <no writeview specified>
notifyview: def_notify_view
row status: active
```

Usage Guidelines

SNMP users and groups are used according to the View-based Access Control Model (VACM) for SNMP. The SNMP group determines the security model to be used. The SNMP user should match the security model of the SNMP group. Each SNMP group name and security level pair must be unique.

Related Commands

Command	Description
clear configure snmp-server	Clears the SNMP server configuration.
show running-config snmp-server	Displays the SNMP server configuration.
snmp-server	Configures the SNMP server.

show snmp-server statistics

To display SNMP server statistics, use the **show snmp-server statistics** command in privileged EXEC mode.

show snmp-server statistics

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following is sample output from the **show snmp-server statistics** command:

```
hostname# show snmp-server statistics
0 SNMP packets input
    0 Bad SNMP version errors
    0 Unknown community name
    0 Illegal operation for community name supplied
    0 Encoding errors
    0 Number of requested variables
    0 Number of altered variables
    0 Get-request PDUs
    0 Get-next PDUs
    0 Get-bulk PDUs
    0 Set-request PDUs (Not supported)
0 SNMP packets output
    0 Too big errors (Maximum packet size 512)
    0 No such name errors
    0 Bad values errors
    0 General errors
    0 Response PDUs
    0 Trap PDUs
```

Related Commands

Command	Description
clear configure snmp-server	Clears the SNMP server configuration.
clear snmp-server statistics	Clears the SNMP packet input and output counters.
show running-config snmp-server	Displays the SNMP server configuration.
snmp-server	Configures the SNMP server.

show snmp-server user

To display information about the configured characteristics of SNMP users, use the **show snmp-server user** command in privileged EXEC mode.

show snmp-server user [*username*]

Syntax Description

username	(Optional) Identifies a specific user or users about which to display SNMP information.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Examples

The following is sample output from the **show snmp-server user** command:

```
hostname# show snmp-server user authuser
User name: authuser
Engine ID: 000000090200000000C025808
storage-type: nonvolatile       active access-list: N/A
Rowstatus: active
Authentication Protocol: MD5
Privacy protocol: DES
Group name: VacmGroupName
```

The output provides the following information:

- The username, which is a string that identifies the name of the SNMP user.
- The engine ID, which is a string that identifies the copy of SNMP on the ASA.
- The storage-type, which indicates whether or not the settings have been set in volatile or temporary memory on the ASA, or in nonvolatile or persistent memory, in which settings remain after the ASA has been turned off and on again.
- The active access list, which is the standard IP access list associated with the SNMP user.
- The Rowstatus, which indicates whether or not it is active or inactive.
- The authentication protocol, which identifies which authentication protocol is being used. Options are MD5, SHA, or none. If authentication is not supported in your software image, this field does not appear.

- The privacy protocol, which indicates whether or not DES packet encryption is enabled. If privacy is not supported in your software image, this field does not appear.
- The group name, which indicates to which SNMP group the user belongs. SNMP groups are defined according to the View-based Access Control Model (VACM).

Usage Guidelines

An SNMP user must be part of an SNMP group. If you do not enter the *username* argument, the **show snmp-server user** command displays information about all configured users. If you enter the *username* argument and the user exists, the information about that user appears.

Related Commands

Command	Description
clear configure snmp-server	Clears the SNMP server configuration.
show running-config snmp-server	Displays the SNMP server configuration.
snmp-server	Configures the SNMP server.

show software authenticity file

To display digital signature information related to software authentication for a specific image file, use the **show software authenticity file** command in privileged EXEC mode.

show software authenticity[*filename*]

Syntax Description

filename	(Optional) Identifies a specific image file.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
9.1(3)	This command was introduced.

Examples

The following is sample output from the **show software authenticity file** command:

```
hostname# show software authenticity file asa913.SSA
File Name                     : disk0:/asa913.SSA
Image type                    : Development
    Signer Information
        Common Name           : Cisco
        Organization Unit     : ASA5585-X
        Organization Name     : Engineering
    Certificate Serial Number : abcd1234efgh5678
    Hash Algorithm            : SHA512
    Signature Algorithm       : 2048-bit RSA
    Key Version               : A
```

The output provides the following information:

- The filename, which is the name of the filename in memory.
- The image type, which is the type of image being shown.
- The signer information specifies the signature information, which includes the following:
  - The common name, which is the name of the software manufacturer.
  - The organization unit, which indicates the hardware that the software image is deployed on.
  - The organization name, which is the owner of the software image.
- The certificate serial number, which is the certificate serial number for the digital signature.

- The hash algorithm, which indicates the type of hash algorithm used in digital signature verification.
- The signature algorithm, which identifies the type of signature algorithm used in digital signature verification.
- The key version, which indicates the key version used for verification.

Related Commands

Command	Description
show version	Displays the software version, hardware configuration, license key, and related uptime data.

show ssh sessions

To display information about the active SSH sessions on the ASA, use the **show ssh sessions** command in privileged EXEC mode.

show ssh sessions [**hostname** or **A.B.C.D**] [**hostname** or **X:X:X:X::X**] [**detail**]

Syntax Description

hostname or **A.B.C.D**	(Optional) Displays SSH session information for only the specified SSH client IPv4 address.
hostname or **X:X:X:X::X**	(Optional) Displays SSH session information for only the specified SSH client IPv6 address.
detail	Displays detailed SSH session information.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.1(2)	The **detail** option was added.

Usage Guidelines

The SID is a unique number that identifies the SSH session. The Client IP is the IP address of the system running an SSH client. The Version is the protocol version number that the SSH client supports. If the SSH only supports SSH version 1, then the Version column displays 1.5. If the SSH client supports both SSH version 1 and SSH version 2, then the Version column displays 1.99. If the SSH client only supports SSH version 2, then the Version column displays 2.0. The Encryption column shows the type of encryption that the SSH client is using. The State column shows the progress that the client is making as it interacts with the ASA. The Username column lists the login username that has been authenticated for the session. The Mode column describes the direction of the SSH data streams.

For SSH version 2, which can use the same or different encryption algorithms, the Mode field displays in and out. For SSH version 1, which uses the same encryption in both directions, the Mode field displays nil (‘-’) and allows only one entry per connection.

Examples

The following is sample output from the **show ssh sessions** command:

```
hostname# show ssh sessions
SID Client IP       Version Mode Encryption Hmac     State           Username
0   172.69.39.39    1.99    IN   aes128-cbc md5      SessionStarted  pat
                            OUT  aes128-cbc md5      SessionStarted  pat
1   172.23.56.236   1.5     -    3DES       -        SessionStarted  pat
2   172.69.39.29    1.99    IN   3des-cbc   sha1     SessionStarted  pat
                            OUT  3des-cbc   sha1     SessionStarted  pat
```

The following is sample output from the **show ssh sessions detail** command:

```
hostname# show ssh sessions detail
SSH Session ID             : 0
>   Client IP              : 161.44.66.200
>   Username               : root
>   SSH Version            : 2.0
>   State                  : SessionStarted
>   Inbound Statistics
>    Encryption            : aes256-cbc
>    HMAC                  : sha1
>    Bytes Received        : 2224
>   Outbound Statistics
>    Encryption            : aes256-cbc
>    HMAC                  : sha1
>    Bytes Transmitted     : 2856
>   Rekey Information
>    Time Remaining (sec)  : 3297
>    Data Remaining (bytes): 996145356
>    Last Rekey            : 16:17:19.732 EST Wed Jan 2 2013
>    Data-Based Rekeys     : 0
>    Time-Based Rekeys     : 0
```

Related Commands

Command	Description
ssh disconnect	Disconnects an active SSH session.
ssh timeout	Sets the timeout value for idle SSH sessions.

show ssl

To display information about the active SSL sessions on the ASA, use the **show ssl** command in privileged EXEC mode.

show ssl [**cache | errors | mib | objects | detail**]

Syntax Description

cache	(Optional) Displays SSL session cache statistics.
errors	(Optional) Displays SSL errors.
mib	(Optional) Displays SSL MIB statistics.
objects	(Optional) Displays SSL object statistics.
detail	Displays detailed SSH session information.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.4(1)	This command was introduced.
9.1(2)	The **detail** option was added.

Usage Guidelines

This command shows information about the current SSLv2 and SSLv3 sessions, including the enabled cipher order, which ciphers are disabled, SSL trustpoints being used, and whether or not certificate authentication is enabled.

Examples

The following is sample output from the **show ssl** command:

```
hostname# show ssl

Accept connections using SSLv2, SSLv3 or TLSv1 and negotiate to SSLv3 or TLSv1
Start connections using SSLv3 and negotiate to SSLv3 or TLSv1
Enabled cipher order: rc4-sha1 dhe-aes128-sha1 dhe-aes256-sha1 aes128-sha1 aes256-sha1
3des-sha1
Disabled ciphers: des-sha1 rc4-md5 null-sha1
SSL trust-points:
  inside interface: interfaceA
  outside interface: interfaceB
Certificate authentication is not enabled
```

The following is sample output from the **show ssh sessions detail** command:

```
hostname# show ssh sessions detail
SSH Session ID             : 0
>   Client IP              : 161.44.66.200
>   Username               : root
>   SSH Version            : 2.0
>   State                  : SessionStarted
>   Inbound Statistics
>    Encryption            : aes256-cbc
>    HMAC                  : sha1
>    Bytes Received        : 2224
>   Outbound Statistics
>    Encryption            : aes256-cbc
>    HMAC                  : sha1
>    Bytes Transmitted     : 2856
>   Rekey Information
>    Time Remaining (sec)  : 3297
>    Data Remaining (bytes): 996145356
>    Last Rekey            : 16:17:19.732 EST Wed Jan 2 2013
>    Data-Based Rekeys     : 0
>    Time-Based Rekeys     : 0
```

Related Commands

Command	Description
license-server port	Sets the port on which the server listens for SSL connections from participants.

show startup-config

To show the startup configuration or to show any errors when the startup configuration loaded, use the **show startup-config** command in privileged EXEC mode.

show startup-config [**errors**]

Syntax Description

errors	(Optional) Shows any errors that were generated when the ASA loaded the startup configuration.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System[1]
Privileged EXEC	•	•	•	•	•

1. The **errors** keyword is only available in single mode and the system execution space,

Command History

Release	Modification
7.0(1)	The **errors** keyword was added.
8.3(1)	The command output displays encrypted paswords.

Usage Guidelines

In multiple context mode, the **show startup-config** command shows the startup configuration for your current execution space: the system configuration or the security context.

The **show startup-config** command output displays encrypted, masked, or clear text passwords when password encryptionis either enabled or disabled.

To clear the startup errors from memory, use the **clear startup-config errors** command.

Examples

The following is sample output from the **show startup-config** command:

```
hostname# show startup-config
: Saved
: Written by enable_15 at 01:44:55.598 UTC Thu Apr 17 2003

Version 7.X(X)
!
interface GigabitEthernet0/0
 nameif inside
 security-level 100
 ip address 209.165.200.224
 webvpn enable
```

```
!
interface GigabitEthernet0/1
 shutdown
 nameif test
 security-level 0
 ip address 209.165.200.225
!

...
!
enable password 8Ry2YjIyt7RRXU24 encrypted
passwd 2KFQnbNIdI.2KYOU encrypted
hostname firewall1
domain-name example.com
boot system disk0:/cdisk.bin
ftp mode passive
names
name 10.10.4.200 outside
access-list xyz extended permit ip host 192.168.0.4 host 209.165.200.226
!
ftp-map ftp_map
!
ftp-map inbound_ftp
 deny-request-cmd appe stor stou
!

...

Cryptochecksum:4edf97923899e712ed0da8c338e07e63
```

The following is sample output from the **show startup-config errors** command:

```
hostname# show startup-config errors

ERROR: 'Mac-addresses': invalid resource name
*** Output from config line 18, "limit-resource Mac-add..."
INFO: Admin context is required to get the interfaces
*** Output from config line 30, "arp timeout 14400"
Creating context 'admin'... WARNING: Invoked the stub function ibm_4gs3_context_
set_max_mgmt_sess
WARNING: Invoked the stub function ibm_4gs3_context_set_max_mgmt_sess
Done. (1)
*** Output from config line 33, "admin-context admin"
WARNING: VLAN *24* is not configured.
*** Output from config line 12, context 'admin', "nameif inside"
.....
*** Output from config line 37, "config-url disk:/admin..."
```

Related Commands

Command	Description
clear startup-config errors	Clears the startup errors from memory.
show running-config	Shows the running configuration.

show sunrpc-server active

To display the pinholes open for Sun RPC services, use the **show sunrpc-server active** command in privileged EXEC mode.

show sunrpc-server active

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Use the **show sunrpc-server active** command to display the pinholes open for Sun RPC services, such as NFS and NIS.

Examples

To display the pinholes open for Sun RPC services, enter the **show sunrpc-server active** command. The following is sample output from the **show sunrpc-server active** command:

```
hostname# show sunrpc-server active
        LOCAL           FOREIGN                 SERVICE TIMEOUT
        -----------------------------------------------
        192.168.100.2/0 209.165.200.5/32780     100005 00:10:00
```

Related Commands

Command	Description
clear configure sunrpc-server	Clears the Sun remote processor call services from the ASA.
clear sunrpc-server active	Clears the pinholes opened for Sun RPC services, such as NFS or NIS.
inspect sunrpc	Enables or disables Sun RPC application inspection and configures the port used.
show running-config sunrpc-server	Displays information about the SunRPC services configuration.

show switch mac-address-table

For models with a built-in switch, such as the ASA 5505 adaptive security appliance, use the **show switch mac-address-table** command in privileged EXEC mode to view the switch MAC address table.

show switch mac-address-table

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command is for models with built-in switches only. The switch MAC address table maintains the MAC address-to-switch port mapping for traffic within each VLAN in the switch hardware. If you are in transparent firewall mode, use the **show mac-address-table** command to view the bridge MAC address table in the ASA software. The bridge MAC address table maintains the MAC address-to-VLAN interface mapping for traffic that passes between VLANs.

MAC address entries age out in 5 minutes.

Examples

The following is sample output from the **show switch mac-address-table** command.

```
hostname# show switch mac-address-table
Legend: Age - entry expiration time in seconds

   Mac Address  | VLAN |       Type       | Age | Port
-----------------------------------------------------
 000e.0c4e.2aa4 | 0001 |     dynamic      | 287 | Et0/0
 0012.d927.fb03 | 0001 |     dynamic      | 287 | Et0/0
 0013.c4ca.8a8c | 0001 |     dynamic      | 287 | Et0/0
 00b0.6486.0c14 | 0001 |     dynamic      | 287 | Et0/0
 00d0.2bff.449f | 0001 |     static       |  -  | In0/1
 0100.5e00.000d | 0001 | static multicast |  -  | In0/1,Et0/0-7
Total Entries: 6
```

Table 58-4 shows each field description:

Table 58-4 show switch mac-address-table Fields

Field	Description
Mac Address	Shows the MAC address.
VLAN	Shows the VLAN associated with the MAC address.
Type	Shows if the MAC address was learned dynamically, as a static multicast address, or statically. The only static entry is for the internal backplane interface.
Age	Shows the age of a dynamic entry in the MAC address table.
Port	Shows the switch port through which the host with the MAC address can be reached.

Related Commands

Command	Description
show mac-address-table	Shows the MAC address table for models that do not have a built-in switch.
show switch vlan	Shows the VLAN and physical MAC address association.

show switch vlan

For models with a built-in switch, such as the ASA 5505 adaptive security appliance, use the **show switch vlan** command in privileged EXEC mode to view the VLANs and the associated switch ports.

show switch vlan

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command is for models with built-in switches only. For other models, use the **show vlan** command.

Examples

The following is sample output from the **show switch vlan** command.

```
hostname# show switch vlan

VLAN Name                            Status    Ports
---- ------------------------------- --------- -------------
100  inside                          up        Et0/0, Et0/1
200  outside                         up        Et0/7
300  -                               down      Et0/1, Et0/2
400  backup                          down      Et0/3
```

Table 58-4 shows each field description:

Table 58-5 show switch vlan Fields

Field	Description
VLAN	Shows the VLAN number.
Name	Shows the name of the VLAN interface. If no name is set using the **nameif** command, or if there is no **interface vlan** command, the display shows a dash (-).

Table 58-5 show switch vlan Fields (continued)

Field	Description
Status	Shows the status, up or down, to receive and send traffic to and from the VLAN in the switch. At least one switch port in the VLAN needs to be in an up state for the VLAN state to be up.
Ports	Shows the switch ports assigned to each VLAN. If a switch port is listed for multiple VLANs, it is a trunk port. The above sample output shows Ethernet 0/1 is a trunk port that carries VLAN 100 and 300.

Related Commands

Command	Description
clear interface	Clears counters for the **show interface** command.
interface vlan	Creates a VLAN interface and enters interface configuration mode.
show interface	Displays the runtime status and statistics of interfaces.
show vlan	Shows the VLANs for models that do not have built-in switches.
switchport mode	Sets the mode of the switch port to access or trunk mode.

CHAPTER 59

show tcpstat through show traffic Commands

show tcpstat

To display the status of the ASA TCP stack and the TCP connections that are terminated on the ASA (for debugging), use the **show tcpstat** command in privileged EXEC mode. This command supports IPv4 and IPv6 addresses.

show tcpstat

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **show tcpstat** command allows you to display the status of the TCP stack and TCP connections that are terminated on the ASA. The TCP statistics displayed are described in Table 28.

Table 59-1 TCP Statistics in the show tcpstat Command

Statistic	Description
tcb_cnt	Number of TCP users.
proxy_cnt	Number of TCP proxies. TCP proxies are used by user authorization.
tcp_xmt pkts	Number of packets that were transmitted by the TCP stack.
tcp_rcv good pkts	Number of good packets that were received by the TCP stack.
tcp_rcv drop pkts	Number of received packets that the TCP stack dropped.
tcp bad chksum	Number of received packets that had a bad checksum.
tcp user hash add	Number of TCP users that were added to the hash table.
tcp user hash add dup	Number of times a TCP user was already in the hash table when trying to add a new user.
tcp user srch hash hit	Number of times a TCP user was found in the hash table when searching.

Table 59-1 TCP Statistics in the show tcpstat Command (continued)

Statistic	Description
tcp user srch hash miss	Number of times a TCP user was not found in the hash table when searching.
tcp user hash delete	Number of times that a TCP user was deleted from the hash table.
tcp user hash delete miss	Number of times that a TCP user was not found in the hash table when trying to delete the user.
lip	Local IP address of the TCP user.
fip	Foreign IP address of the TCP user.
lp	Local port of the TCP user.
fp	Foreign port of the TCP user.
st	State (see RFC 793) of the TCP user. The possible values are as follows: 1 CLOSED 2 LISTEN 3 SYN_SENT 4 SYN_RCVD 5 ESTABLISHED 6 FIN_WAIT_1 7 FIN_WAIT_2 8 CLOSE_WAIT 9 CLOSING 10 LAST_ACK 11 TIME_WAIT
rexqlen	Length of the retransmit queue of the TCP user.
inqlen	Length of the input queue of the TCP user.
tw_timer	Value of the time_wait timer (in milliseconds) of the TCP user.
to_timer	Value of the inactivity timeout timer (in milliseconds) of the TCP user.
cl_timer	Value of the close request timer (in milliseconds) of the TCP user.
per_timer	Value of the persist timer (in milliseconds) of the TCP user.
rt_timer	Value of the retransmit timer (in milliseconds) of the TCP user.
tries	Retransmit count of the TCP user.

Examples

This example shows how to display the status of the TCP stack on the ASA:

```
hostname# show tcpstat
                CURRENT MAX      TOTAL
tcb_cnt         2       12       320
proxy_cnt       0       0        160

tcp_xmt pkts = 540591
tcp_rcv good pkts = 6583
tcp_rcv drop pkts = 2
```

```
tcp bad chksum = 0
tcp user hash add = 2028
tcp user hash add dup = 0
tcp user srch hash hit = 316753
tcp user srch hash miss = 6663
tcp user hash delete = 2027
tcp user hash delete miss = 0

lip = 172.23.59.230 fip = 10.21.96.254 lp = 443 fp = 2567 st = 4 rexqlen = 0
in0
  tw_timer = 0 to_timer = 179000 cl_timer = 0 per_timer = 0
rt_timer = 0
tries 0
```

Related Commands

Command	Description
show conn	Displays the connections used and those that are available.

show tech-support

To display the information that is used for diagnosis by technical support analysts, use the **show tech-support** command in privileged EXEC mode.

show tech-support [**detail** | **file** | **no-config**]

Syntax Description

detail	(Optional) Lists detailed information.
file	(Optional) Writes the output of the command to a file.
no-config	(Optional) Excludes the output of the running configuration.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	The **detail** and **file** keywords were added.
7.2(1)	The output was enhanced to display more detailed information about processes that hog the CPU.
9.1(2)	The output was enhanced to include information from the **show environment** command.
9.1(3)	The output was enhanced to include information from the **show memory detail, show memory top-usage,** and **show vlan** commands.

Usage Guidelines

The **show tech-suppor**t command lets you list information that technical support analysts need to help you diagnose problems. This command combines the output from the **show** commands that provide the most information to a technical support analyst.

Examples

The following example shows how to display information that is used for technical support analysis. The output was shortened to begin with output from the **show module** command.

```
hostname# show tech-support | beg show module

------------------ show module ------------------

Mod Card Type                                    Model              Serial No.
```

```
--- ------------------------------------------ ------------------ -----------
  0 ASA 5585-X Security Services Processor-10 wi ASA5585-SSP-10     JAD1626056J

Mod MAC Address Range                 Hw Version   Fw Version   Sw Version
--- --------------------------------- ------------ ------------ ---------------
  0 a493.4c43.0d68 to a493.4c43.0d73  2.0          2.0(13)0     100.8(0)229

Mod SSP Application Name           Status           SSP Application Version
--- ------------------------------ ---------------- --------------------------

Mod Status             Data Plane Status     Compatibility
--- ------------------ --------------------- -------------
  0 Up Sys             Not Applicable


------------------ show environment ------------------


Cooling Fans:
-------------------------------------

   Power Supplies:
   --------------------------------
   Left Slot (PS0): 6900 RPM - OK  (Power Supply Fan)
   Right Slot (PS1): 7200 RPM - OK  (Fan Module Fan)

Power Supplies:
-------------------------------------
   Power Supply Unit Redundancy: N/A

   Temperature:
   --------------------------------
   Left Slot (PS0): 30 C - OK  (Power Supply Temperature)
   Right Slot (PS1): 31 C - OK  (Fan Module Temperature)

   Cooling Fans:
   --------------------------------
   Left Slot (PS0): 6900 RPM - OK  (Power Supply Fan)
   Right Slot (PS1): 7100 RPM - OK  (Fan Module Fan)

Temperature:
-------------------------------------

   Processors:
   --------------------------------
   Processor 1: 47.0 C - OK  (CPU1 Core Temperature)

   Chassis:
   --------------------------------
   Ambient 1: 31.5 C - OK  (Chassis Front Temperature)
   Ambient 2: 37.5 C - OK  (Chassis Back Temperature)
   Ambient 3: 31.25 C - OK  (CPU1 Front Temperature)
   Ambient 4: 32.0 C - OK  (CPU1 Back Temperature)

   IO Hub:
   --------------------------------
   Circuit Die: 49.0 C - OK  (Circuit Die Temperature)

   Power Supplies:
   --------------------------------
   Left Slot (PS0): 30 C - OK  (Power Supply Temperature)
   Right Slot (PS1): 31 C - OK  (Fan Module Temperature)

Voltage:
```

```
-----------------------------------
   Channel 1:  3.325 V -   (3.3V (U142 VX1))
   Channel 2:  1.496 V -   (1.5V (U142 VX2))
   Channel 3:  1.048 V -   (1.05V (U142 VX3))
   Channel 4:  3.337 V -   (3.3V_STDBY (U142 VP1))
   Channel 5: 11.665 V -   (12V (U142 VP2))
   Channel 6:  4.950 V -   (5.0V (U142 VP3))
   Channel 7:  6.853 V -   (7.0V (U142 VP4))
   Channel 8:  9.616 V -   (IBV (U142 VH))
   Channel 9:  1.046 V -   (1.05VB (U209 VX2))
   Channel 10:  1.213 V -   (1.2V (U209 VX3))
   Channel 11:  1.110 V -   (1.1V (U209 VX4))
   Channel 12:  1.006 V -   (1.0V (U209 VX5))
   Channel 13:  3.335 V -   (3.3V STDBY (U209 VP1))
   Channel 14:  2.499 V -   (2.5V (U209 VP2))
   Channel 15:  1.803 V -   (1.8V (U209 VP3))
   Channel 16:  1.894 V -   (1.9V (U209 VP4))
   Channel 17:  9.611 V -   (IBV (U209 VH))
   Channel 18:  2.048 V -   (VTT CPU0 (U83 VX2))
   Channel 19:  0.000 V -   (VTT CPU1 (U83 VX3))
   Channel 20:  2.048 V -   (VCC CPU0 (U83 VX4))
   Channel 21:  1.772 V -   (VCC CPU1 (U83 VX5))
   Channel 22:  1.516 V -   (1.5VA (U83 VP1))
   Channel 23:  0.000 V -   (1.5VB (U83 VP2))
   Channel 24:  8.937 V -   (IBV (U83 VH))

------------------ show memory ------------------

Free memory:        4927975152 bytes (76%)
Used memory:        1514475792 bytes (24%)
-------------     ------------------
Total memory:       6442450944 bytes (100%)

------------------ show conn count ------------------

0 in use, 0 most used

------------------ show xlate count ------------------

0 in use, 0 most used

------------------ show vpn-sessiondb summary ------------------


 No sessions to display.


------------------ show blocks ------------------

  SIZE    MAX    LOW    CNT
     0   1450   1450   1450
     4    100     99     99
    80   1000   1000   1000

------------------ show memory detail ------------------

Free memory:                      276580360 bytes (52%)
Used memory:
     Allocated memory in use:      67352568 bytes (13%)
     Reserved memory:             192937984 bytes (36%)
----------------------------   ------------------
Total memory:                     536870912 bytes (100%)

Least free memory:        276397760 bytes (51%)
```

```
Most used memory:         260473152 bytes (49%)

MEMPOOL_DMA POOL STATS:

Non-mmapped bytes allocated =     40779776
Number of free chunks       =           66
Number of mmapped regions   =            0
Mmapped bytes allocated     =            0
Max memory footprint        =     40779776
Keepcost                    =     10852432
Max contiguous free mem     =     10852432
Allocated memory in use     =     29908112
Free memory                 =     10871664

----- fragmented memory statistics -----

 fragment size       count          total
    (bytes)                       (bytes)
---------------  ----------  --------------
           48             1             48**
          256            64          18944
     10852432             1       10852432*

*  - top most releasable chunk.
** - contiguous memory on top of heap.


----- allocated memory statistics -----

 fragment size       count          total
    (bytes)                       (bytes)
---------------  ----------  --------------
          112             1            112
          232             1            232
          248             1            248
          256             1            256
         1024            64          65536
         2048             3           6144
         8192             1           8192
        16384             3          49152
        24576             2          49152
        32768             3          98304
        49152             1          49152
        65536             3         196608
        98304             3         294912
       131072             1         131072
       196608             3         589824
       262144             2         524288
       393216             1         393216
       786432             1         786432
      1048576             2        2097152
      1572864             1        1572864
      2097152             2        4194304
      3145728             1        3145728
     12582912             1       12582912

MEMPOOL_GLOBAL_SHARED POOL STATS:

Non-mmapped bytes allocated =    343932928
Number of free chunks       =          119
Number of mmapped regions   =            0
Mmapped bytes allocated     =            0
Max memory footprint        =    343932928
Keepcost                    =    276525880
```

```
Max contiguous free mem     =    276525880
Allocated memory in use     =     67352568
Free memory                 =    276580360

----- fragmented memory statistics -----

 fragment size       count          total
    (bytes)                       (bytes)
----------------  ----------  --------------
           16            37            592
           24            37            888
           32            21            672
           40            18            720
           48             1             48**
           56             1             56
          184             1            184
         2048             1           3048
        32768             1          33616
    276525880             1      276525880*

*  - top most releasable chunk.
** - contiguous memory on top of heap.


----- allocated memory statistics -----

 fragment size       count          total
    (bytes)                       (bytes)
----------------  ----------  --------------
           48           544          26112
           56          2438         136528
           64          6806         435584
           72           524          37728
           80          1071          85680
           88           242          21296
           96           240          23040
          104          2258         234832
          112            66           7392
          120           157          18840
          128           162          20736
          136             8           1088
          144            11           1584
          152           457          69464
          160           387          61920
          168           151          25368
          176           204          35904
          184           391          71944
          192            20           3840
          208           112          23296
          216             1            216
          224            27           6048
          232            12           2784
          240            44          10560
          248            41          10168
          256           321          82176
          384           451         173184
          512           253         129536
          768            86          66048
         1024            97          99328
         1536            35          53760
         2048           367         751616
         3072            84         258048
         4096            51         208896
         6144            13          79872
```

```
          8192            35         286720
         12288            34         417792
         16384           127        2080768
         24576            16         393216
         32768            35        1146880
         49152            10         491520
         65536           126        8257536
         98304             4         393216
        131072            21        2752512
        196608             7        1376256
        262144             7        1835008
        393216             2         786432
        524288            14        7340032
        786432             1         786432
       1048576             2        2097152
       1572864             1        1572864
       2097152             1        2097152
       3145728             1        3145728
       4194304             1        4194304
       8388608             2       16777216

Summary for all pools:

Non-mmapped bytes allocated =    384712704
Number of free chunks       =          185
Number of mmapped regions   =            0
Mmapped bytes allocated     =            0
Max memory footprint        =    384712704
Keepcost                    =    287378312
Allocated memory in use     =     97260680
Free memory                 =    287452024


------------------ show memory top-usage ------------------

MEMPOOL_DMA pool binsize allocated byte totals:

----- allocated memory statistics -----

 fragment size       count          total
    (bytes)                        (bytes)
----------------  ----------  --------------
     12582912             1       12582912
      2097152             2        4194304
      3145728             1        3145728
      1048576             2        2097152
      1572864             1        1572864
       786432             1         786432
       196608             3         589824
       262144             2         524288
       393216             1         393216
        98304             3         294912

----- Binsize PC top usage -----

Binsize: 12582912               total (bytes): 12582912

pc = 0x805ada0, size = 12960071 , count = 1

Binsize: 2097152                total (bytes): 4194304

pc = 0x805ada0, size = 5758350  , count = 2

Binsize: 3145728                total (bytes): 3145728
```

```
pc = 0x987071c, size = 3178567  , count = 1

Binsize: 1048576                total (bytes): 2097152

pc = 0x805ada0, size = 2309774  , count = 2

Binsize: 1572864                total (bytes): 1572864

pc = 0x805ada0, size = 1740871  , count = 1

Binsize: 786432                 total (bytes): 786432

pc = 0x805ada0, size = 915271   , count = 1

Binsize: 196608                 total (bytes): 589824

pc = 0x805ada0, size = 484622   , count = 2
pc = 0x80567f1, size = 259271   , count = 1

Binsize: 262144                 total (bytes): 524288

pc = 0x805ada0, size = 352071   , count = 1
pc = 0x80567f1, size = 310471   , count = 1

Binsize: 393216                 total (bytes): 393216

pc = 0x805ada0, size = 505671   , count = 1

Binsize: 98304                  total (bytes): 294912

pc = 0x805ada0, size = 129671   , count = 1
pc = 0x80567f1, size = 227342   , count = 2


MEMPOOL_GLOBAL_SHARED pool binsize allocated byte totals:

----- allocated memory statistics -----

 fragment size       count          total
    (bytes)                        (bytes)
----------------  ----------  --------------
      8388608             2       16777216
        65536           126        8257536
       524288            14        7340032
      4194304             1        4194304
      3145728             1        3145728
       131072            21        2752512
      1048576             2        2097152
      2097152             1        2097152
        16384           127        2080768
       262144             7        1835008

----- Binsize PC top usage -----

Binsize: 8388608                total (bytes): 16777216

pc = 0x825b333, size = 16777216 , count = 2

Binsize: 65536                  total (bytes): 8257536

pc = 0x916e48d, size = 7531232  , count = 107
pc = 0x982de33, size = 263056   , count = 4
pc = 0x982db72, size = 324956   , count = 4
```

```
pc = 0x82d9092, size = 65536    , count = 1
pc = 0x819b8f9, size = 77824    , count = 1
pc = 0x819b65e, size = 77824    , count = 1
pc = 0x9334871, size = 65536    , count = 1
pc = 0x8a01e5a, size = 65536    , count = 1
pc = 0x8a109f0, size = 65536    , count = 1
pc = 0x9162fb0, size = 163968   , count = 2
pc = 0x8f13da8, size = 66048    , count = 1
pc = 0x8056c11, size = 66528    , count = 1
pc = 0x8056bf5, size = 66528    , count = 1

Binsize: 524288                 total (bytes): 7340032

pc = 0x8a9f8eb, size = 643264   , count = 1
pc = 0x982db72, size = 5325112  , count = 8
pc = 0x807bcb4, size = 524312   , count = 1
pc = 0x821944f, size = 1282600  , count = 2
pc = 0x9187575, size = 524312   , count = 1
pc = 0x8056a14, size = 524352   , count = 1

Binsize: 4194304                total (bytes): 4194304

pc = 0x8cc1f27, size = 5242924  , count = 1

Binsize: 3145728                total (bytes): 3145728

pc = 0x821944f, size = 3698788  , count = 1

Binsize: 131072                 total (bytes): 2752512

pc = 0x9137bc4, size = 163904   , count = 1
pc = 0x806e421, size = 393216   , count = 3
pc = 0x8f3f649, size = 154136   , count = 1
pc = 0x911894b, size = 131072   , count = 1
pc = 0x89f3fd0, size = 141212   , count = 1
pc = 0x982de33, size = 593580   , count = 4
pc = 0x8167e2b, size = 160864   , count = 1
pc = 0x982db72, size = 983250   , count = 6
pc = 0x9162fb0, size = 327808   , count = 2
pc = 0x806e024, size = 184800   , count = 1

Binsize: 1048576                total (bytes): 2097152

pc = 0x982de33, size = 1081507  , count = 1
pc = 0x821944f, size = 1120100  , count = 1

Binsize: 2097152                total (bytes): 2097152

pc = 0x8aa1252, size = 2097152  , count = 1

Binsize: 16384                  total (bytes): 2080768

pc = 0x806e421, size = 1474560  , count = 90
pc = 0x982de33, size = 135545   , count = 7
pc = 0x9173a77, size = 36928    , count = 2
pc = 0x88a6fec, size = 163840   , count = 10
pc = 0x8f3f649, size = 24160    , count = 1
pc = 0x982db72, size = 96195    , count = 5
pc = 0x8a765c0, size = 17408    , count = 1
pc = 0x92cb71b, size = 17388    , count = 1
pc = 0x982dbee, size = 119925   , count = 7
pc = 0x879defa, size = 19456    , count = 1
pc = 0x8ebd433, size = 16432    , count = 1
pc = 0x8ebd415, size = 16432    , count = 1
```

```
Binsize: 262144                 total (bytes): 1835008

pc = 0x982db72, size = 1573315  , count = 5
pc = 0x982de33, size = 580878   , count = 2

------------------ show vlan ------------------

64, 66, 70-72, 80-82, 142, 151, 950-951, 960-961
```

Related Commands

Command	Description
show clock	Displays the clock for use with the Syslog Server (PFSS) and the Public Key Infrastructure (PKI) protocol.
show conn count	Displays the connections used and available.
show cpu	Display the CPU utilization information.
show failover	Displays the status of a connection and which ASA is active
show memory	Displays a summary of the maximum physical memory and current free memory that is available to the operating system.
show perfmon	Displays information about the performance of the ASA
show processes	Displays a list of the processes that are running.
show running-config	Displays the configuration that is currently running on the ASA.
show xlate	Displays information about the translation slot.

show threat-detection memory

To show the memory used by advanced threat detection statistics, which are enabled by the **threat-detection statistics** command, use the **show threat-detection memory** command in privileged EXEC mode.

show threat-detection memory

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	—

Command History

Release	Modification
8.3(1)	This command was introduced.

Usage Guidelines

Some statistics can use a lot of memory and can affect ASA performance. This command lets you monitor memory usage so you can adjust your configuration if necessary.

Examples

The following is sample output from the **show threat-detection memory** command:

```
hostname# show threat-detection memory
Cached chunks:
       CACHE TYPE             BYTES USED
TD Host                         70245888
TD Port                             2724
TD Protocol                         1476
TD ACE                               728
TD Shared counters                 14256
============================
Subtotal TD Chunks              70265072


Regular memory                BYTES USED
TD Port                             33824
TD Control block                   162064
============================
Subtotal Regular Memory            195888
```

```
Total TD memory:                70460960
```

Related Commands

Command	Description
show threat-detection statistics host	Shows the host statistics.
show threat-detection statistics port	Shows the port statistics.
show threat-detection statistics protocol	Shows the protocol statistics.
show threat-detection statistics top	Shows the top 10 statistics.
threat-detection statistics	Enables advanced threat-detection statistics.

show threat-detection rate

When you enable basic threat detection using the **threat-detection basic-threat** command, you can view statistics using the **show threat-detection rate** command in privileged EXEC mode.

show threat-detection rate [**min-display-rate** *min_display_rate*] [**acl-drop** | **bad-packet-drop** | **conn-limit-drop** | **dos-drop** | **fw-drop** | **icmp-drop** | **inspect-drop** | **interface-drop** | **scanning-threat** | **syn-attack**]

Syntax Description

acl-drop	(Optional) Shows the rate for dropped packets caused by denial by access lists.
min-display-rate *min_display_rate*	(Optional) Limits the display to statistics that exceed the minimum display rate in events per second. You can set the *min_display_rate* between 0 and 2147483647.
bad-packet-drop	(Optional) Shows the rate for dropped packets caused by denial by a bad packet format (such as invalid-ip-header or invalid-tcp-hdr-length).
conn-limit-drop	(Optional) Shows the rate for dropped packets caused by the connection limits being exceeded (both system-wide resource limits, and limits set in the configuration).
dos-drop	(Optional) Shows the rate for dropped packets caused by a detected DoS attack (such as an invalid SPI, Stateful Firewall check failure).
fw-drop	(Optional) Shows the rate for dropped packets caused by basic firewall check failure. This option is a combined rate that includes all firewall-related packet drops in this command. It does not include non-firewall-related drops such as **interface-drop**, **inspect-drop**, and **scanning-threat**.
icmp-drop	(Optional) Shows the rate for dropped packets caused by denial by suspicious ICMP packets detected.
inspect-drop	(Optional) Shows the rate limit for dropped packets caused by packets failing application inspection.
interface-drop	(Optional) Shows the rate limit for dropped packets caused by an interface overload.
scanning-threat	(Optional) Shows the rate for dropped packets caused by a scanning attack detected. This option monitors scanning attacks; for example, the first TCP packet is not a SYN packet, or the TCP connection failed the 3-way handshake. Full scanning threat detection (see the **threat-detection scanning-threat** command) takes this scanning attack rate information and acts on it by classifying hosts as attackers and automatically shunning them, for example.
syn-attack	(Optional) Shows the rate for dropped packets caused by an incomplete session, such as TCP SYN attack or no data UDP session attack.

Defaults

If you do not specify an event type, all events are shown.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.
8.2(1)	The burst rate interval changed from 1/60th to 1/30th of the average rate.
8.2(2)	For threat events, the severity level was changed from a warning to a notification. Threat events can be triggered every five minutes.

Usage Guidelines

The display output shows the following:

- The average rate in events/sec over fixed time periods
- The current burst rate in events/sec over the last completed burst interval, which is 1/30th of the average rate interval or 10 seconds, whichever is larger
- The number of times the rates were exceeded
- The total number of events over the fixed time periods.

The ASA computes the event counts 30 times over the average rate interval; in other words, the ASA checks the rate at the end of each burst period, for a total of 30 completed burst intervals. The unfinshed burst interval presently occurring is not included in the average rate. For example, if the average rate interval is 10 minutes, then the burst interval is 10 seconds. If the last burst interval was from 3:00:00 to 3:00:10, and you use the **show** command at 3:00:15, then the last 5 seconds are not included in the output.

The only exception to this rule is if the number of events in the unfinished burst interval already exceeds the number of events in the oldest burst interval (#1 of 30) when calculating the total events. In that case, the ASA calculates the total events as the last 59 complete intervals, plus the events so far in the unfinished burst interval. This exception lets you monitor a large increase in events in real time.

Examples

The following is sample output from the **show threat-detection rate** command:

```
hostname# show threat-detection rate

                      Average(eps)    Current(eps) Trigger         Total events
  10-min ACL  drop:              0              0       0                   16
  1-hour ACL  drop:              0              0       0                  112
  1-hour SYN attck:              5              0       2                21438
  10-min  Scanning:              0              0      29                  193
  1-hour  Scanning:            106              0      10               384776
  1-hour Bad  pkts:             76              0       2               274690
  10-min  Firewall:              0              0       3                   22
  1-hour  Firewall:             76              0       2               274844
  10-min DoS attck:              0              0       0                    6
  1-hour DoS attck:              0              0       0                   42
  10-min Interface:              0              0       0                  204
```

```
1-hour Interface:                88              0       0               318225
```

Related Commands

Command	Description
clear threat-detection rate	Clears basic threat detection statistics.
show running-config all threat-detection	Shows the threat detection configuration, including the default rate settings if you did not configure them individually.
threat-detection basic-threat	Enables basic threat detection.
threat-detection rate	Sets the threat detection rate limits per event type.
threat-detection scanning-threat	Enables scanning threat detection.

show threat-detection scanning-threat

If you enable scanning threat detection with the **threat-detection scanning-threat** command, then view the hosts that are categorized as attackers and targets using the **show threat-detection scanning-threat** command in privileged EXEC mode.

show threat-detection scanning-threat [**attacker** | **target**]

Syntax Description

attacker	(Optional) Shows attacking host IP addresses.
target	(Optional) Shows targeted host IP addresses.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.
8.0(4)	The display was modified to include “& Subnet List” in the heading text.
8.2(2)	For threat events, the severity level was changed from a warning to a notification. Threat events can be triggered every five minutes.

Examples

The following is sample output from the **show threat-detection scanning-threat** command:

```
hostname# show threat-detection scanning-threat
Latest Target Host & Subnet List:
    192.168.1.0
    192.168.1.249
   Latest Attacker Host & Subnet List:
    192.168.10.234
    192.168.10.0
    192.168.10.2
    192.168.10.3
    192.168.10.4
    192.168.10.5
    192.168.10.6
    192.168.10.7
    192.168.10.8
    192.168.10.9
```

Related Commands

Command	Description
clear threat-detection shun	Releases hosts from being shunned.
show threat-detection shun	Shows the currently shunned hosts.
show threat-detection statistics protocol	Shows the protocol statistics.
show threat-detection statistics top	Shows the top 10 statistics.
threat-detection scanning-threat	Enables scanning threat detection.

show threat-detection shun

If you enable scanning threat detection with the **threat-detection scanning-threat** command, and you automatically shun attacking hosts, then view the currently shunned hosts using the **show threat-detection shun** command in privileged EXEC mode.

show threat-detection shun

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.
8.2(2)	For threat events, the severity level was changed from a warning to a notification. Threat events can be triggered every five minutes.

Usage Guidelines

To release a host from being shunned, use the **clear threat-detection shun** command.

Examples

The following is sample output from the **show threat-detection shun** command:

```
hostname# show threat-detection shun
Shunned Host List:
10.1.1.6
198.1.6.7
```

Related Commands

Command	Description
clear threat-detection shun	Releases hosts from being shunned.
show threat-detection statistics host	Shows the host statistics.
show threat-detection statistics protocol	Shows the protocol statistics.
show threat-detection statistics top	Shows the top 10 statistics.
threat-detection scanning-threat	Enables scanning threat detection.

show threat-detection statistics host

After you enable threat statistics with the **threat-detection statistics host** command, view host statistics using the **show threat-detection statistics host** command in privileged EXEC mode. Threat detection statistics show both allowed and dropped traffic rates.

show threat-detection statistics [**min-display-rate** *min_display_rate*] **host** [*ip_address* [*mask*]]

Syntax Description

ip_address	(Optional) Shows statistics for a particular host.
mask	(Optional) Sets the subnet mask for the host IP address.
min-display-rate *min_display_rate*	(Optional) Limits the display to statistics that exceed the minimum display rate in events per second. You can set the *min_display_rate* between 0 and 2147483647.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.
8.2(1)	The burst rate interval changed from 1/60th to 1/30th of the average rate.
8.2(2)	For threat events, the severity level was changed from a warning to a notification. Threat events can be triggered every five minutes.

Usage Guidelines

The display output shows the following:

- The average rate in events/sec over fixed time periods.
- The current burst rate in events/sec over the last completed burst interval, which is 1/30th of the average rate interval or 10 seconds, whichever is larger
- The number of times the rates were exceeded (for dropped traffic statistics only)
- The total number of events over the fixed time periods.

The ASA computes the event counts 30 times over the average rate interval; in other words, the ASA checks the rate at the end of each burst period, for a total of 30 completed burst intervals. The unfinished burst interval presently occurring is not included in the average rate. For example, if the average rate

interval is 20 minutes, then the burst interval is 20 seconds. If the last burst interval was from 3:00:00 to 3:00:20, and you use the **show** command at 3:00:25, then the last 5 seconds are not included in the output.

The only exception to this rule is if the number of events in the unfinished burst interval already exceeds the number of events in the oldest burst interval (#1 of 30) when calculating the total events. In that case, the ASA calculates the total events as the last 29 complete intervals, plus the events so far in the unfinished burst interval. This exception lets you monitor a large increase in events in real time.

Examples

The following is sample output from the **show threat-detection statistics host** command:

```
hostname# show threat-detection statistics host

                        Average(eps)    Current(eps) Trigger         Total events
Host:10.0.0.1: tot-ses:289235 act-ses:22571 fw-drop:0 insp-drop:0 null-ses:21438 bad-acc:0
  1-hour Sent byte:               2938               0       0              10580308
  8-hour Sent byte:                367               0       0              10580308
 24-hour Sent byte:                122               0       0              10580308
  1-hour Sent pkts:                 28               0       0                104043
  8-hour Sent pkts:                  3               0       0                104043
 24-hour Sent pkts:                  1               0       0                104043
  20-min Sent drop:                  9               0       1                 10851
  1-hour Sent drop:                  3               0       1                 10851
  1-hour Recv byte:               2697               0       0               9712670
  8-hour Recv byte:                337               0       0               9712670
 24-hour Recv byte:                112               0       0               9712670
  1-hour Recv pkts:                 29               0       0                104846
  8-hour Recv pkts:                  3               0       0                104846
 24-hour Recv pkts:                  1               0       0                104846
  20-min Recv drop:                 42               0       3                 50567
  1-hour Recv drop:                 14               0       1                 50567
Host:10.0.0.0: tot-ses:1 act-ses:0 fw-drop:0 insp-drop:0 null-ses:0 bad-acc:0
  1-hour Sent byte:                  0               0       0                   614
  8-hour Sent byte:                  0               0       0                   614
 24-hour Sent byte:                  0               0       0                   614
  1-hour Sent pkts:                  0               0       0                     6
  8-hour Sent pkts:                  0               0       0                     6
 24-hour Sent pkts:                  0               0       0                     6
  20-min Sent drop:                  0               0       0                     4
  1-hour Sent drop:                  0               0       0                     4
  1-hour Recv byte:                  0               0       0                   706
  8-hour Recv byte:                  0               0       0                   706
 24-hour Recv byte:                  0               0       0                   706
  1-hour Recv pkts:                  0               0       0                     7
```

Table 59-2 shows each field description.

Table 59-2 show threat-detection statistics host Fields

Field	Description
Host	Shows the host IP address.
tot-ses	Shows the total number of sessions for this host since it was added to the database.
act-ses	Shows the total number of active sessions that the host is currently involved in.

Table 59-2 show threat-detection statistics host Fields (continued)

Field	Description
fw-drop	Shows the number of firewall drops. Firewall drops is a combined rate that includes all firewall-related packet drops tracked in basic threat detection, including access list denials, bad packets, exceeded connection limits, DoS attack packets, suspicious ICMP packets, TCP SYN attack packets, and no data UDP attack packets. It does not include non-firewall-related drops such as interface overload, packets failed at application inspection, and scanning attack detected.
insp-drop	Shows the number of packets dropped because they failed application inspection.
null-ses	Shows the number of null sessions, which are TCP SYN sessions that did not complete within the 30-second timeout, and UDP sessions that did not have any data sent by its server 3 seconds after the session starts.
bad-acc	Shows the number of bad access attempts to host ports that are in a closed state. When a port is determined to be in a null session (see above), the port state of the host is set to HOST_PORT_CLOSE. Any client accessing the port of the host is immediately classified as a bad access without the need to wait for a timeout.
Average(eps)	Shows the average rate in events/sec over each time period. The security appliance stores the count at the end of each burst period, for a total of 30 completed burst intervals. The unfinished burst interval presently occurring is not included in the average rate. For example, if the average rate interval is 20 minutes, then the burst interval is 20 seconds. If the last burst interval was from 3:00:00 to 3:00:20, and you use the **show** command at 3:00:25, then the last 5 seconds are not included in the output. The only exception to this rule is if the number of events in the unfinished burst interval already exceeds the number of events in the oldest burst interval (#1 of 30) when calculating the total events. In that case, the ASA calculates the total events as the last 29 complete intervals, plus the events so far in the unfinished burst interval. This exception lets you monitor a large increase in events in real time.
Current(eps)	Shows the current burst rate in events/sec over the last completed burst interval, which is 1/30th of the average rate interval or 10 seconds, whichever is larger. For the example specified in the Average(eps) description, the current rate is the rate from 3:19:30 to 3:20:00
Trigger	Shows the number of times the dropped packet rate limits were exceeded. For valid traffic identified in the sent and received bytes and packets rows, this value is always 0, because there are no rate limits to trigger for valid traffic.
Total events	Shows the total number of events over each rate interval. The unfinished burst interval presently occurring is not included in the total events. The only exception to this rule is if the number of events in the unfinished burst interval already exceeds the number of events in the oldest burst interval (#1 of 30) when calculating the total events. In that case, the ASA calculates the total events as the last 29 complete intervals, plus the events so far in the unfinished burst interval. This exception lets you monitor a large increase in events in real time.

Table 59-2 show threat-detection statistics host Fields (continued)

Field	Description
20-min, 1-hour, 8-hour, and 24-hour	By default, there are three rate intervals shown. You can reduce the number of rate intervals using the **threat-detection statistics host number-of-rate** command. Because host statistics use a lot of memory, reducing the number of rate intervals from the default of 3 reduces the memory usage. If you set this keyword to 1, then only the shortest rate interval statistics are maintained. If you set the value to 2, then the two shortest intervals are maintained.
Sent byte	Shows the number of successful bytes sent from the host.
Sent pkts	Shows the number of successful packets sent from the host.
Sent drop	Shows the number of packets sent from the host that were dropped because they were part of a scanning attack.
Recv byte	Shows the number of successful bytes received by the host.
Recv pkts	Shows the number of successful packets received by the host.
Recv drop	Shows the number of packets received by the host that were dropped because they were part of a scanning attack.

Related Commands

Command	Description
threat-detection scanning-threat	Enables scanning threat detection.
show threat-detection statistics top	Shows the top 10 statistics.
show threat-detection statistics port	Shows the port statistics.
show threat-detection statistics protocol	Shows the protocol statistics.
threat-detection statistics	Enables threat statistics.

show threat-detection statistics port

After you enable threat statistics with the **threat-detection statistics port** command, view TCP and UDP port statistics using the **show threat-detection statistics port** command in privileged EXEC mode. Threat detection statistics show both allowed and dropped traffic rates.

show threat-detection statistics [**min-display-rate** *min_display_rate*] **port** [*start_port*[**-***end_port*]]

Syntax Description

start_port[**-***end_port*]	(Optional) Shows statistics for a particular port or range of ports, between 0 and 65535.
min-display-rate *min_display_rate*	(Optional) Limits the display to statistics that exceed the minimum display rate in events per second. You can set the *min_display_rate* between 0 and 2147483647.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.
8.2(1)	The burst rate interval changed from 1/60th to 1/30th of the average rate.
8.2(2)	For threat events, the severity level was changed from a warning to a notification. Threat events can be triggered every five minutes.

Usage Guidelines

The display output shows the following:

- The average rate in events/sec over fixed time periods.
- The current burst rate in events/sec over the last completed burst interval, which is 1/30th of the average rate interval or 10 seconds, whichever is larger
- The number of times the rates were exceeded (for dropped traffic statistics only)
- The total number of events over the fixed time periods.

The ASA computes the event counts 30 times over the average rate interval; in other words, the ASA checks the rate at the end of each burst period, for a total of 30 completed burst intervals. The unfinished burst interval presently occurring is not included in the average rate. For example, if the average rate

interval is 20 minutes, then the burst interval is 20 seconds. If the last burst interval was from 3:00:00 to 3:00:20, and you use the **show** command at 3:00:25, then the last 5 seconds are not included in the output.

The only exception to this rule is if the number of events in the unfinished burst interval already exceeds the number of events in the oldest burst interval (#1 of 30) when calculating the total events. In that case, the ASA calculates the total events as the last 29 complete intervals, plus the events so far in the unfinished burst interval. This exception lets you monitor a large increase in events in real time.

Examples

The following is sample output from the **show threat-detection statistics port** command:

```
hostname# show threat-detection statistics port

                          Average(eps)    Current(eps) Trigger         Total events
80/HTTP: tot-ses:310971 act-ses:22571
  1-hour Sent byte:               2939              0       0             10580922
  8-hour Sent byte:                367          22043       0             10580922
 24-hour Sent byte:                122           7347       0             10580922
  1-hour Sent pkts:                 28              0       0               104049
  8-hour Sent pkts:                  3            216       0               104049
 24-hour Sent pkts:                  1             72       0               104049
  20-min Sent drop:                  9              0       2                10855
  1-hour Sent drop:                  3              0       2                10855
  1-hour Recv byte:               2698              0       0              9713376
  8-hour Recv byte:                337          20236       0              9713376
 24-hour Recv byte:                112           6745       0              9713376
  1-hour Recv pkts:                 29              0       0               104853
  8-hour Recv pkts:                  3            218       0               104853
 24-hour Recv pkts:                  1             72       0               104853
  20-min Recv drop:                 24              0       2                29134
  1-hour Recv drop:                  8              0       2                29134
```

Table 59-2 shows each field description.

Table 59-3 show threat-detection statistics port Fields

Field	Description
Average(eps)	Shows the average rate in events/sec over each time period. The security appliance stores the count at the end of each burst period, for a total of 30 completed burst intervals. The unfinished burst interval presently occurring is not included in the average rate. For example, if the average rate interval is 20 minutes, then the burst interval is 20 seconds. If the last burst interval was from 3:00:00 to 3:00:20, and you use the **show** command at 3:00:25, then the last 5 seconds are not included in the output. The only exception to this rule is if the number of events in the unfinished burst interval already exceeds the number of events in the oldest burst interval (#1 of 30) when calculating the total events. In that case, the ASA calculates the total events as the last 29 complete intervals, plus the events so far in the unfinished burst interval. This exception lets you monitor a large increase in events in real time.
Current(eps)	Shows the current burst rate in events/sec over the last completed burst interval, which is 1/30th of the average rate interval or 10 seconds, whichever is larger. For the example specified in the Average(eps) description, the current rate is the rate from 3:19:30 to 3:20:00

Table 59-3 show threat-detection statistics port Fields (continued)

Field	Description
Trigger	Shows the number of times the dropped packet rate limits were exceeded. For valid traffic identified in the sent and received bytes and packets rows, this value is always 0, because there are no rate limits to trigger for valid traffic.
Total events	Shows the total number of events over each rate interval. The unfinished burst interval presently occurring is not included in the total events. The only exception to this rule is if the number of events in the unfinished burst interval already exceeds the number of events in the oldest burst interval (#1 of 30) when calculating the total events. In that case, the ASA calculates the total events as the last 29 complete intervals, plus the events so far in the unfinished burst interval. This exception lets you monitor a large increase in events in real time.
port_number/*port_name*	Shows the port number and name where the packet or byte was sent, received, or dropped.
tot-ses	Shows the total number of sessions for this port.
act-ses	Shows the total number of active sessions that the port is currently involved in.
20-min, 1-hour, 8-hour, and 24-hour	Shows statistics for these fixed rate intervals.
Sent byte	Shows the number of successful bytes sent from the port.
Sent pkts	Shows the number of successful packets sent from the port.
Sent drop	Shows the number of packets sent from the port that were dropped because they were part of a scanning attack.
Recv byte	Shows the number of successful bytes received by the port.
Recv pkts	Shows the number of successful packets received by the port.
Recv drop	Shows the number of packets received by the port that were dropped because they were part of a scanning attack.

Related Commands

Command	Description
threat-detection scanning-threat	Enables scanning threat detection.
show threat-detection statistics top	Shows the top 10 statistics.
show threat-detection statistics host	Shows the host statistics.
show threat-detection statistics protocol	Shows the protocol statistics.
threat-detection statistics	Enables threat statistics.

show threat-detection statistics protocol

After you enable threat statistics with the **threat-detection statistics protocol** command, view IP protocol statistics using the **show threat-detection statistics protocol** command in privileged EXEC mode. Threat detection statistics show both allowed and dropped traffic rates.

show threat-detection statistics [**min-display-rate** *min_display_rate*] **protocol** [*protocol_number* | *protocol_name*]

Syntax Description

protocol_number	(Optional) Shows statistics for a specific protocol number, between 0 and 255.
min-display-rate *min_display_rate*	(Optional) Limits the display to statistics that exceed the minimum display rate in events per second. You can set the *min_display_rate* between 0 and 2147483647.
protocol_name	(Optional) Shows statistics for a specific protocol name: • **ah** • **eigrp** • **esp** • **gre** • **icmp** • **igmp** • **igrp** • **ip** • **ipinip** • **ipsec** • **nos** • **ospf** • **pcp** • **pim** • **pptp** • **snp** • **tcp** • **udp**

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.
8.2(1)	The burst rate interval changed from 1/60th to 1/30th of the average rate.
8.2(2)	For threat events, the severity level was changed from a warning to a notification. Threat events can be triggered every five minutes.

Usage Guidelines

The display output shows the following:

- The average rate in events/sec over fixed time periods.
- The current burst rate in events/sec over the last completed burst interval, which is 1/30th of the average rate interval or 10 seconds, whichever is larger
- The number of times the rates were exceeded (for dropped traffic statistics only)
- The total number of events over the fixed time periods.

The ASA computes the event counts 30 times over the average rate interval; in other words, the ASA checks the rate at the end of each burst period, for a total of 30 completed burst intervals. The unfinished burst interval presently occurring is not included in the average rate. For example, if the average rate interval is 20 minutes, then the burst interval is 20 seconds. If the last burst interval was from 3:00:00 to 3:00:20, and you use the **show** command at 3:00:25, then the last 5 seconds are not included in the output.

The only exception to this rule is if the number of events in the unfinished burst interval already exceeds the number of events in the oldest burst interval (#1 of 30) when calculating the total events. In that case, the ASA calculates the total events as the last 29 complete intervals, plus the events so far in the unfinished burst interval. This exception lets you monitor a large increase in events in real time.

Examples

The following is sample output from the **show threat-detection statistics protocol** command:

```
hostname# show threat-detection statistics protocol

                           Average(eps)    Current(eps) Trigger         Total events
ICMP: tot-ses:0 act-ses:0
  1-hour Sent byte:                   0               0       0                 1000
  8-hour Sent byte:                   0               2       0                 1000
 24-hour Sent byte:                   0               0       0                 1000
  1-hour Sent pkts:                   0               0       0                   10
  8-hour Sent pkts:                   0               0       0                   10
 24-hour Sent pkts:                   0               0       0                   10
```

Table 59-2 shows each field description.

Table 59-4 show threat-detection statistics protocol Fields

Field	Description
Average(eps)	Shows the average rate in events/sec over each time period. The security appliance stores the count at the end of each burst period, for a total of 30 completed burst intervals. The unfinished burst interval presently occurring is not included in the average rate. For example, if the average rate interval is 20 minutes, then the burst interval is 20 seconds. If the last burst interval was from 3:00:00 to 3:00:20, and you use the **show** command at 3:00:25, then the last 5 seconds are not included in the output. The only exception to this rule is if the number of events in the unfinished burst interval already exceeds the number of events in the oldest burst interval (#1 of 30) when calculating the total events. In that case, the ASA calculates the total events as the last 29 complete intervals, plus the events so far in the unfinished burst interval. This exception lets you monitor a large increase in events in real time.
Current(eps)	Shows the current burst rate in events/sec over the last completed burst interval, which is 1/30th of the average rate interval or 10 seconds, whichever is larger. For the example specified in the Average(eps) description, the current rate is the rate from 3:19:30 to 3:20:00
Trigger	Shows the number of times the dropped packet rate limits were exceeded. For valid traffic identified in the sent and received bytes and packets rows, this value is always 0, because there are no rate limits to trigger for valid traffic.
Total events	Shows the total number of events over each rate interval. The unfinished burst interval presently occurring is not included in the total events. The only exception to this rule is if the number of events in the unfinished burst interval already exceeds the number of events in the oldest burst interval (#1 of 30) when calculating the total events. In that case, the ASA calculates the total events as the last 29 complete intervals, plus the events so far in the unfinished burst interval. This exception lets you monitor a large increase in events in real time.
protocol_number/ *protocol_name*	Shows the protocol number and name where the packet or byte was sent, received, or droppped.
tot-ses	Not currently used.
act-ses	Not currently used.
20-min, 1-hour, 8-hour, and 24-hour	Shows statistics for these fixed rate intervals.
Sent byte	Shows the number of successful bytes sent from the protocol.
Sent pkts	Shows the number of successful packets sent from the protocol.
Sent drop	Shows the number of packets sent from the protocol that were dropped because they were part of a scanning attack.
Recv byte	Shows the number of successful bytes received by the protocol.

Table 59-4 show threat-detection statistics protocol Fields (continued)

Field	Description
Recv pkts	Shows the number of successful packets received by the protocol.
Recv drop	Shows the number of packets received by the protocol that were dropped because they were part of a scanning attack.

Related Commands

Command	Description
threat-detection scanning-threat	Enables scanning threat detection.
show threat-detection statistics top	Shows the top 10 statistics.
show threat-detection statistics port	Shows the port statistics.
show threat-detection statistics host	Shows the host statistics.
threat-detection statistics	Enables threat statistics.

show threat-detection statistics top

After you enable threat statistics with the **threat-detection statistics** command, view the top 10 statistics using the **show threat-detection statistics top** command in privileged EXEC mode. If you did not enable the threat detection statistics for a particular type, then you cannot view those statistics with this command. Threat detection statistics show both allowed and dropped traffic rates.

show threat-detection statistics [**min-display-rate** *min_display_rate*] **top** [[**access-list** | **host** | **port-protocol**] [**rate-1** | **rate-2** | **rate-3**] | **tcp-intercept** [**all**] [**detail**] [**long**]]

Syntax Description

access-list	(Optional) Shows the top 10 ACEs that that match packets, including both permit and deny ACEs. Permitted and denied traffic are not differentiated in this display. If you enable basic threat detection using the **threat-detection basic-threat** command, you can track access list denies using the **show threat-detection rate access-list** command.
all	(Optional) For TCP Intercept, shows the history data of all the traced servers.
detail	(Optional) For TCP Intercept, shows history sampling data.
host	(Optional) Shows the top 10 host statistics for each fixed time period. **Note** Due to the threat detection algorithm, an interface used for a failover link or state link could appear as one of the top 10 hosts. This occurrence is more likely when you use one interface for both the failover and state link. This is expected behavior, and you can ignore this IP address in the display.
long	(Optional) Shows the statistical history in a long format, with the real IP address and the untranslated IP address of the server.
min-display-rate *min_display_rate*	(Optional) Limits the display to statistics that exceed the minimum display rate in events per second. You can set the *min_display_rate* between 0 and 2147483647.
port-protocol	(Optional) Shows the top 10 combined statistics of TCP/UDP port and IP protocol types. TCP (protocol 6) and UDP (protocol 17) are not included in the display for IP protocols; TCP and UDP ports are, however, included in the display for ports. If you only enable statistics for one of these types, port or protocol, then you will only view the enabled statistics.
rate-1	(Optional) Shows the statistics for the smallest fixed rate intervals available in the display. For example, if the display shows statistics for the last 1 hour, 8 hours, and 24 hours, then when you use the **rate-1** keyword, the ASA shows only the 1 hour time interval.
rate-2	(Optional) Shows the statistics for the middle fixed rate intervals available in the display. For example, if the display shows statistics for the last 1 hour, 8 hours, and 24 hours, then when you use the **rate-2** keyword, the ASA shows only the 8 hour time interval.
rate-3	(Optional) Shows the statistics for the largest fixed rate intervals available in the display. For example, if the display shows statistics for the last 1 hour, 8 hours, and 24 hours, then when you use the **rate-3** keyword, the ASA shows only the 24 hour time interval.
tcp-intercept	Shows TCP Intercept statistics. The display includes the top 10 protected servers under attack.

Defaults

If you do not specify an event type, all events are shown.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.
8.0(4)	The **tcp-intercept** keyword was added.
8.2(1)	The burst rate interval changed from 1/60th to 1/30th of the average rate.
8.2(2)	The **long** keyword was added for **tcp-intercept**. For threat events, the severity level was changed from a warning to a notification. Threat events can be triggered every five minutes.

Usage Guidelines

The display output shows the following:

- The average rate in events/sec over fixed time periods.
- The current burst rate in events/sec over the last completed burst interval, which is 1/30th of the average rate interval or 10 seconds, whichever is larger
- The number of times the rates were exceeded (for dropped traffic statistics only)
- The total number of events over the fixed time periods.

The ASA computes the event counts 30 times over the average rate interval; in other words, the ASA checks the rate at the end of each burst period, for a total of 30 completed burst intervals. The unfinished burst interval presently occurring is not included in the average rate. For example, if the average rate interval is 20 minutes, then the burst interval is 20 seconds. If the last burst interval was from 3:00:00 to 3:00:20, and you use the **show** command at 3:00:25, then the last 5 seconds are not included in the output.

The only exception to this rule is if the number of events in the unfinished burst interval already exceeds the number of events in the oldest burst interval (#1 of 30) when calculating the total events. In that case, the ASA calculates the total events as the last 29 complete intervals, plus the events so far in the unfinished burst interval. This exception lets you monitor a large increase in events in real time.

Examples

The following is sample output from the **show threat-detection statistics top access-list** command:

```
hostname# show threat-detection statistics top access-list

                    Top     Average(eps)     Current(eps) Trigger         Total events
  1-hour ACL hits:
              100/3[0]              173                0       0               623488
              200/2[1]               43                0       0               156786
              100/1[2]               43                0       0               156786
```

```
8-hour ACL hits:
            100/3[0]              21            1298        0              623488
            200/2[1]               5             326        0              156786
            100/1[2]               5             326        0              156786
```

Table 59-2 shows each field description.

Table 59-5 show threat-detection statistics top access-list Fields

Field	Description
Top	Shows the ranking of the ACE within the time period, from [0] (highest count) to [9] (lowest count). You might not have enough statistics for all 10 positions, so less then 10 ACEs might be listed.
Average(eps)	Shows the average rate in events/sec over each time period. The security appliance stores the count at the end of each burst period, for a total of 30 completed burst intervals. The unfinished burst interval presently occurring is not included in the average rate. For example, if the average rate interval is 20 minutes, then the burst interval is 20 seconds. If the last burst interval was from 3:00:00 to 3:00:20, and you use the **show** command at 3:00:25, then the last 5 seconds are not included in the output. The only exception to this rule is if the number of events in the unfinished burst interval already exceeds the number of events in the oldest burst interval (#1 of 30) when calculating the total events. In that case, the ASA calculates the total events as the last 29 complete intervals, plus the events so far in the unfinished burst interval. This exception lets you monitor a large increase in events in real time.
Current(eps)	Shows the current burst rate in events/sec over the last completed burst interval, which is 1/30th of the average rate interval or 10 seconds, whichever is larger. For the example specified in the Average(eps) description, the current rate is the rate from 3:19:30 to 3:20:00.
Trigger	This column is always 0, because there are no rate limits triggered by access list traffic; denied and permitted traffic are not differentiated in this display. If you enable basic threat detection using the **threat-detection basic-threat** command, you can track access list denies using the **show threat-detection rate access-list** command.
Total events	Shows the total number of events over each rate interval. The unfinished burst interval presently occurring is not included in the total events. The only exception to this rule is if the number of events in the unfinished burst interval already exceeds the number of events in the oldest burst interval (#1 of 30) when calculating the total events. In that case, the ASA calculates the total events as the last 29 complete intervals, plus the events so far in the unfinished burst interval. This exception lets you monitor a large increase in events in real time.
1-hour, 8-hour	Shows statistics for these fixed rate intervals.
acl_name/line_number	Shows the access list name and line number of the ACE that caused the denies.

The following is sample output from the **show threat-detection statistics top access-list rate-1** command:

```
hostname# show threat-detection statistics top access-list rate-1
```

```
                  Top     Average(eps)     Current(eps) Trigger          Total events
  1-hour ACL hits:
              100/3[0]              173                0       0                623488
              200/2[1]               43                0       0                156786
              100/1[2]               43                0       0                156786
```

The following is sample output from the **show threat-detection statistics top port-protocol** command:

```
hostname# show threat-detection statistics top port-protocol

Top           Name    Id    Average(eps)     Current(eps) Trigger       Total events
  1-hour Recv byte:
 1          gopher    70               71                0       0           32345678
 2   btp-clnt/dhcp    68               68                0       0           27345678
 3          gopher    69               65                0       0           24345678
 4     Protocol-96 * 96               63                0       0           22345678
 5       Port-7314 7314               62                0       0           12845678
 6 BitTorrent/trc 6969               61                0       0           12645678
 7      Port-8191-65535              55                0       0           12345678
 8            SMTP  366               34                0       0            3345678
 9          IPinIP *  4               30                0       0            2345678
10           EIGRP * 88               23                0       0            1345678
  1-hour Recv pkts:
...
...
  8-hour Recv byte:
...
...
  8-hour Recv pkts:
...
...
 24-hour Recv byte:
...
...
 24-hour Recv pkts:
...
...

Note: Id preceded by * denotes the Id is an IP protocol type
```

Table 59-6 shows each field description.

Table 59-6 show threat-detection statistics top port-protocol Fields

Field	Description
Top	Shows the ranking of the port or protocol within the time period/type of statistic, from [0] (highest count) to [9] (lowest count). You might not have enough statistics for all 10 positions, so less then 10 ports/protocols might be listed.
Name	Shows the port/protocol name.
Id	Shows the port/protocol ID number. The asterisk (*) means the ID is an IP protocol number.
Average(eps)	See the description in Table 59-2.
Current(eps)	See the description in Table 59-2.
Trigger	Shows the number of times the dropped packet rate limits were exceeded. For valid traffic identified in the sent and received bytes and packets rows, this value is always 0, because there are no rate limits to trigger for valid traffic.

Table 59-6 show threat-detection statistics top port-protocol Fields (continued)

Field	Description
Total events	See the description in Table 59-2.
Time_interval Sent byte	Shows the number of successful bytes sent from the listed ports and protocols for each time period.
Time_interval Sent packet	Shows the number of successful packets sent from the listed ports and protocols for each time period.
Time_interval Sent drop	Shows the number of packets sent for each time period from the listed ports and protocols that were dropped because they were part of a scanning attack.
Time_interval Recv byte	Shows the number of successful bytes received by the listed ports and protocols for each time period.
Time_interval Recv packet	Shows the number of successful packets received by the listed ports and protocols for each time period.
Time_interval Recv drop	Shows the number of packets received for each time period by the listed ports and protocols that were dropped because they were part of a scanning attack.
port_number/ *port_name*	Shows the port number and name where the packet or byte was sent, received, or droppped.
protocol_number/ *protocol_name*	Shows the protocol number and name where the packet or byte was sent, received, or droppped.

The following is sample output from the **show threat-detection statistics top host** command:

```
hostname# show threat-detection statistics top host

                  Top    Average(eps)    Current(eps) Trigger         Total events
  1-hour Sent byte:
          10.0.0.1[0]            2938               0       0             10580308
  1-hour Sent pkts:
          10.0.0.1[0]              28               0       0               104043
  20-min Sent drop:
          10.0.0.1[0]               9               0       1                10851
  1-hour Recv byte:
          10.0.0.1[0]            2697               0       0              9712670
  1-hour Recv pkts:
          10.0.0.1[0]              29               0       0               104846
  20-min Recv drop:
          10.0.0.1[0]              42               0       3                50567
  8-hour Sent byte:
          10.0.0.1[0]             367               0       0             10580308
  8-hour Sent pkts:
          10.0.0.1[0]               3               0       0               104043
  1-hour Sent drop:
          10.0.0.1[0]               3               0       1                10851
  8-hour Recv byte:
          10.0.0.1[0]             337               0       0              9712670
  8-hour Recv pkts:
          10.0.0.1[0]               3               0       0               104846
  1-hour Recv drop:
          10.0.0.1[0]              14               0       1                50567
 24-hour Sent byte:
          10.0.0.1[0]             122               0       0             10580308
 24-hour Sent pkts:
          10.0.0.1[0]               1               0       0               104043
```

```
24-hour Recv byte:
         10.0.0.1[0]              112               0       0              9712670
24-hour Recv pkts:
         10.0.0.1[0]                1               0       0               104846
```

Table 59-7 shows each field description.

Table 59-7 show threat-detection statistics top host Fields

Field	Description
Top	Shows the ranking of the host within the time period/type of statistic, from [0] (highest count) to [9] (lowest count). You might not have enough statistics for all 10 positions, so less then 10 hosts might be listed.
Average(eps)	See the description in Table 59-2.
Current(eps)	See the description in Table 59-2.
Trigger	See the description in Table 59-2.
Total events	See the description in Table 59-2.
Time_interval Sent byte	Shows the number of successful bytes sent to the listed hosts for each time period.
Time_interval Sent packet	Shows the number of successful packets sent to the listed hosts for each time period.
Time_interval Sent drop	Shows the number of packets sent for each time period to the listed hosts that were dropped because they were part of a scanning attack.
Time_interval Recv byte	Shows the number of successful bytes received by the listed hosts for each time period.
Time_interval Recv packet	Shows the number of successful packets received by the listed ports and protocols for each time period.
Time_interval Recv drop	Shows the number of packets received for each time period by the listed ports and protocols that were dropped because they were part of a scanning attack.
host_ip_address	Shows the host IP address where the packet or byte was sent, received, or droppped.

The following is sample output from the **show threat-detection statistics top tcp-intercept** command:

```
hostname# show threat-detection statistics top tcp-intercept

Top 10 protected servers under attack (sorted by average rate)
Monitoring window size: 30 mins    Sampling interval: 30 secs
<Rank> <Server IP:Port> <Interface> <Ave Rate> <Cur Rate> <Total> <Source IP (Last Attack
Time)>
--------------------------------------------------------------------------------
1    192.168.1.2:5000 inside 1249 9503 2249245 <various> Last: 10.0.0.3 (0 secs ago)
2    192.168.1.3:5000 inside 10 10 6080 10.0.0.200 (0 secs ago)
3    192.168.1.4:5000 inside 2 6 560 10.0.0.200 (59 secs ago)
4    192.168.1.5:5000 inside 1 5 560 10.0.0.200 (59 secs ago)
5    192.168.1.6:5000 inside 1 4 560 10.0.0.200 (59 secs ago)
6    192.168.1.7:5000 inside 0 3 560 10.0.0.200 (59 secs ago)
7    192.168.1.8:5000 inside 0 2 560 10.0.0.200 (59 secs ago)
8    192.168.1.9:5000 inside 0 1 560 10.0.0.200 (59 secs ago)
9    192.168.1.10:5000 inside 0 0 550 10.0.0.200 (2 mins ago)
10   192.168.1.11:5000 inside 0 0 550 10.0.0.200 (5 mins ago)
```

Table 59-8 shows each field description.

Table 59-8 show threat-detection statistics top tcp-intercept Fields

Field	Description
Monitoring window size:	Shows the period of time over which the ASA samples data for statistics. The default is 30 minutes. You can change this setting using the **threat-detection statistics tcp-intercept rate-interval** command. The ASA samples data 30 times during this interval.
Sampling interval:	Shows the interval between samples. This value is always the rate interval divided by 30.
rank	Shows the ranking, 1 through 10, where 1 is the most attacked server, and 10 is the least attacked server.
server_ip:port	Shows the server IP address and the port on which it is being attacked.
interface	Shows the inerface through which the server is being attacked.
avg_rate	Shows the average rate of attack, in attacks per second over the sampling period
current_rate	Shows the current attack rate, in attacks per second.
total	Shows the total number of attacks.
attacker_ip	Shows the attacker IP address.
(*last_attack_time* ago)	Shows when the last attack occurred.

The following is sample output from the **show threat-detection statistics top tcp-intercept long** command with the real source IP address in parentheses:

```
hostname# show threat-detection statistics top tcp-intercept long

Top 10 protected servers under attack (sorted by average rate)
Monitoring window size: 30 mins    Sampling interval: 30 secs
<Rank> <Server IP:Port (Real IP:Real Port)> <Interface> <Ave Rate> <Cur Rate> <Total>
<Source IP (Last Attack Time)>
--------------------------------------------------------------------------------
1    10.1.0.2:6025 (209.165.200.227:6025) inside 18 709 33911 10.0.0.201 (0 secs ago)
2    10.1.0.2:6026 (209.165.200.227:6026) inside 18 709 33911 10.0.0.201 (0 secs ago)
3    10.1.0.2:6027 (209.165.200.227:6027) inside 18 709 33911 10.0.0.201 (0 secs ago)
4    10.1.0.2:6028 (209.165.200.227:6028) inside 18 709 33911 10.0.0.201 (0 secs ago)
5    10.1.0.2:6029 (209.165.200.227:6029) inside 18 709 33911 10.0.0.201 (0 secs ago)
6    10.1.0.2:6030 (209.165.200.227:6030) inside 18 709 33911 10.0.0.201 (0 secs ago)
7    10.1.0.2:6031 (209.165.200.227:6031) inside 18 709 33911 10.0.0.201 (0 secs ago)
8    10.1.0.2:6032 (209.165.200.227:6032) inside 18 709 33911 10.0.0.201 (0 secs ago)
9    10.1.0.2:6033 (209.165.200.227:6033) inside 18 709 33911 10.0.0.201 (0 secs ago)
10   10.1.0.2:6034 (209.165.200.227:6034) inside 18 709 33911 10.0.0.201 (0 secs ago)
```

The following is sample output from the **show threat-detection statistics top tcp-intercept detail** command:

```
hostname# show threat-detection statistics top tcp-intercept detail

Top 10 Protected Servers under Attack (sorted by average rate)
Monitoring Window Size: 30 mins    Sampling Interval: 30 secs
<Rank> <Server IP:Port> <Interface> <Ave Rate> <Cur Rate> <Total> <Source IP (Last Attack
Time)>
--------------------------------------------------------------------------------
1    192.168.1.2:5000 inside 1877 9502 3379276 <various> Last: 10.0.0.45 (0 secs ago)
```

```
    Sampling History (30 Samplings):
            95348      95337      95341      95339      95338      95342
            95337      95348      95342      95338      95339      95340
            95339      95337      95342      95348      95338      95342
            95337      95339      95340      95339      95347      95343
            95337      95338      95342      95338      95337      95342
            95348      95338      95342      95338      95337      95343
            95337      95349      95341      95338      95337      95342
            95338      95339      95338      95350      95339      95570
            96351      96351      96119      95337      95349      95341
            95338      95337      95342      95338      95338      95342
......
```

Table 59-9 shows each field description.

Table 59-9 show threat-detection statistics top tcp-intercept detail Fields

Field	Description
Monitoring window size:	Shows the period of time over which the ASA samples data for statistics. The default is 30 minutes. You can change this setting using the **threat-detection statistics tcp-intercept rate-interval** command. The ASA samples data 30 times during this interval.
Sampling interval:	Shows the interval between samples. This value is always the rate interval divided by 30.
rank	Shows the ranking, 1 through 10, where 1 is the most attacked server, and 10 is the least attacked server.
server_ip:port	Shows the server IP address and the port on which it is being attacked.
interface	Shows the inerface through which the server is being attacked.
avg_rate	Shows the average rate of attack, in attacks per second over the rate interval set by the **threat-detection statistics tcp-intercept rate-interval** command (by default, the rate interval is 30 minutes). The ASA samples the data every 30 seconds over the rate interval.
current_rate	Shows the current attack rate, in attacks per second.
total	Shows the total number of attacks.
attacker_ip or <various> Last: *attacker_ip*	Shows the attacker IP address. If there is more than one attacker, then "<various>" displays followed by the last attacker IP address.
(*last_attack_time* ago)	Shows when the last attack occurred.
sampling data	Shows all 30 sampling data values, which show the number of attacks at each inerval.

Related Commands

Command	Description
threat-detection scanning-threat	Enables scanning threat detection.
show threat-detection statistics host	Shows the host statistics.
show threat-detection statistics port	Shows the port statistics.
show threat-detection statistics protocol	Shows the protocol statistics.
threat-detection statistics	Enables threat statistics.

show tls-proxy

To display TLS proxy and session information, use the **show tls-proxy** command in global configuration mode.

show tls-proxy *tls_name* [**session** [**host** *host_addr* | **detail** [**cert-dump** | **count**] [**statistics**]]

Syntax Description

cert-dump	Dumps the local dynamic certificate. Output is a hex dump of the LDC.
count	Shows only the session counters.
detail	Shows detailed TLS proxy information including the cipher for each SSL leg and the LDC.
host *host_addr*	Specifies a particular host to show the sessions associated with.
session	Shows active TLS proxy sessions.
statistics	Shows statistics for monitoring and managing TLS sessions.
tls_name	Name of the TLS proxy to show.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC mode	•	•	•	•	•

Command History

Release	Modification
8.0(2)	This command was introduced.
8.3(1)	The **statistics** keyword was added.

Examples

The following is sample output from the **show tls-proxy** command:

```
hostname# show tls-proxy
TLS-Proxy 'proxy': ref_cnt 1, seq#1
    Server proxy:
        Trust-point: local_ccm
    Client proxy:
        Local dynamic certificate issuer: ldc_signer
        Local dynamic certificate key-pair: phone_common
        Cipher-suite <unconfigured>
    Run-time proxies:
        Proxy 0x448b468: Class-map: skinny_ssl, Inspect: skinny
            Active sess 1, most sess 4, byte 3244
```

The following is sample output from the **show tls-proxy session** command:

```
hostname# show tls-proxy session
outside 133.9.0.211:51291 inside 195.168.2.200:2443 P:0x4491a60(proxy)
S:0x482e790 byte 3388
```

The following is sample output from the **show tls-proxy session detail** command:

```
hostname# show tls-proxy session detail
1 in use, 1 most used
outside 133.9.0.211:50433 inside 195.168.2.200:2443 P:0xcba60b60(proxy) S:0xcbc10748 byte
1831704
    Client: State SSLOK  Cipher AES128-SHA Ch 0xca55efc8 TxQSize 0 LastTxLeft 0 Flags 0x1
    Server: State SSLOK  Cipher AES128-SHA Ch 0xca55efa8 TxQSize 0 LastTxLeft 0 Flags 0x9
Local Dynamic Certificate
    Status: Available
    Certificate Serial Number: 29
    Certificate Usage: General Purpose
    Public Key Type: RSA (1024 bits)
    Issuer Name:
        cn=TLS-Proxy-Signer
    Subject Name:
        cn=SEP0002B9EB0AAD
        o=Cisco Systems Inc
        c=US
    Validity Date:
        start date: 00:47:12 PDT Feb 27 2007
        end   date: 00:47:12 PDT Feb 27 2008
    Associated Trustpoints:
```

The following is sample output from the **show tls-proxy session statistics** command:

```
hostname# show tls-proxy session stastics
    TLS Proxy Sessions (Established: 600)
        Mobility:                              200
        UC-IME:                                400

    Per-Session Licensed TLS Proxy Sessions
    (Established: 222, License Limit: 250)
        SIP:                                     2
        SCCP:                                   20
        Phone Proxy:                           200

    Total TLS Proxy Sessions
        Established:                           822
        Platform Limit:                       1000
```

Related Commands

Command	Description
client	Defines a cipher suite and sets the local dynamic certificate issuer or keypair.
ctl-provider	Defines a CTL provider instance and enters provider configuration mode.
show running-config tls-proxy	Shows running configuration of all or specified TLS proxies.
tls-proxy	Defines a TLS proxy instance and sets the maximum sessions.

show track

To display information about object tracked by the tracking process, use the **show track** command in user EXEC mode.

show track [*track-id*]

Syntax Description

track-id	A tracking entry object ID. Valid values are from 1 to 500.

Defaults

If the *track-id* is not provided, then information about all tracking objects is displayed.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
User EXEC	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following is sample output from the **show track** command:

```
hostname(config)# show track

Track 5
    Response Time Reporter 124 reachability
    Reachability is UP
    2 changes, last change 03:41:16
    Latest operation return code: OK
    Tracked by:
        STATIC-IP-ROUTING 0
```

Related Commands

Command	Description
show running-config track	Displays the **track rtr** commands in the running configuration.
track rtr	Creates a tracking entry to poll the SLA.

show traffic

To display interface transmit and receive activity, use the **show traffic** command in privileged EXEC mode.

show traffic

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.2(1)	Output for the ASA 5550 was added.

Usage Guidelines

The **show traffic** command lists the number of packets and bytes moving through each interface since the last **show traffic** command was entered or since the ASA came online. The number of seconds is the duration the ASA has been online since the last reboot, unless the **clear traffic** command was entered since the last reboot. If this is the case, then the number of seconds is the duration since that command was entered.

For the ASA 5550, the **show traffic** command also shows the aggregated throughput per slot. Because the ASA 5550 requires traffic to be evenly distributed across slots for maximum throughput, this output helps you determine if the traffic is distributed evenly.

Examples

The following is sample output from the **show traffic** command:

```
hostname# show traffic
outside:
        received (in 102.080 secs):
                2048 packets 204295 bytes
                20 pkts/sec 2001 bytes/sec
        transmitted (in 102.080 secs):
                2048 packets 204056 bytes
                20 pkts/sec 1998 bytes/sec

Ethernet0:
        received (in 102.080 secs):
                2049 packets 233027 bytes
```

```
                20 pkts/sec 2282 bytes/sec
        transmitted (in 102.080 secs):
                2048 packets 232750 bytes
                20 pkts/sec 2280 bytes/sec
```

For the ASA 5550, the following text is displayed at the end:

```
----------------------------------------
        Per Slot Throughput Profile
----------------------------------------
  Packets-per-second profile:
    Slot 0:       3148  50%|****************
    Slot 1:       3149  50%|****************

  Bytes-per-second profile:
    Slot 0:     427044  50%|****************
    Slot 1:     427094  50%|****************
```

Related Commands

Command	Description
clear traffic	Resets the counters for transmit and receive activity.

CHAPTER 60

show uauth through show xlate Commands

show uauth

To display one or all currently authenticated users, the host IP to which they are bound, and any cached IP and port authorization information, use the **show uauth** command in privileged EXEC mode.

show uauth [*username*]

Syntax Description

username	(Optional) Specifies, by username, the user authentication and authorization information to display.

Defaults

Omitting username displays the authorization information for all users.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **show uauth** command displays the AAA authorization and authentication caches for one user or for all users.

This command is used with the **timeout** command.

Each user host IP address has an authorization cache attached to it. The cache allows up to 16 address and service pairs for each user host. If the user attempts to access a service that has been cached from the correct host, the ASA considers it preauthorized and immediately proxies the connection. Once you are authorized to access a website, for example, the authorization server is not contacted for each image as it is loaded (assuming the images come from the same IP address). This process significantly increases performance and reduces the load on the authorization server.

The output from the **show uauth** command displays the username that is provided to the authorization server for authentication and authorization purposes, the IP address to which the username is bound, and whether the user is authenticated only or has cached services.

Note When you enable Xauth, an entry is added to the uauth table (as shown by the **show uauth** command) for the IP address that is assigned to the client. However, when using Xauth with the Easy VPN Remote feature in Network Extension Mode, the IPsec tunnel is created from network to network, so that the users behind the firewall cannot be associated with a single IP address. For this reason, a uauth entry cannot be created upon completion of Xauth. If AAA authorization or accounting services are required, you can enable the AAA authentication proxy to authenticate users behind the firewall. For more information on AAA authentication proxies, see to the **aaa** commands.

Use the **timeout uauth** command to specify how long the cache should be kept after the user connections become idle. Use the **clear uauth** command to delete all the authorization caches for all the users, which will cause them to have to reauthenticate the next time that they create a connection.

Examples

This example shows sample output from the **show uauth** command when no users are authenticated and one user authentication is in progress:

```
hostname(config)# show uauth
                        Current    Most Seen
Authenticated Users       0          0
Authen In Progress        0          1
```

This example shows sample output from the **show uauth** command when three users are authenticated and authorized to use services through the ASA:

```
hostname(config)# show uauth
user 'pat' from 209.165.201.2 authenticated
user 'robin' from 209.165.201.4 authorized to:
   port 192.168.67.34/telnet    192.168.67.11/http     192.168.67.33/tcp/8001
        192.168.67.56/tcp/25    192.168.67.42/ftp
user 'terry' from 209.165.201.7 authorized to:
   port 192.168.1.50/http     209.165.201.8/http
```

Related Commands

Command	Description
clear uauth	Remove current user authentication and authorization information.
timeout	Set the maximum idle time duration.

show url-block

To display the number of packets held in the url-block buffer and the number (if any) dropped due to exceeding the buffer limit or retransmission, use the **show url-block** command in privileged EXEC mode.

show url-block [**block statistics**]

Syntax Description

block statistics	(Optional) Displays block buffer usage statistics.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **show url-block block statistics** command displays the number of packets held in the url block buffer and the number (if any) dropped due to exceeding the buffer limit or retransmission.

Examples

The following is sample output from the **show url-block** command:

```
hostname# show url-block
|url-block url-mempool 128|url-block url-size 4|url-block block 128
```

This shows the configuration of the URL block buffer.

The following is sample output from the **show url-block block statistics** command:

```
hostname# show url-block block statistics

URL Pending Packet Buffer Stats with max block  128|
Cumulative number of packets held:|896
Maximum number of packets held (per URL):|3
Current number of packets held (global):|38
Packets dropped due to
|exceeding url-block buffer limit:|7546
|HTTP server retransmission:|10
Number of packets released back to client:|0
```

Related Commands

Commands	Description
clear url-block block statistics	Clears the block buffer usage counters.
filter url	Directs traffic to a URL filtering server.
url-block	Manage the URL buffers used for web server responses.
url-cache	Enables URL caching while pending responses from an N2H2 or Websense server and sets the size of the cache.
url-server	Identifies an N2H2 or Websense server for use with the **filter** command.

show url-cache statistics

To display information about the url-cache, which is used for URL responses received from an N2H2 or Websense filtering server, use the **show url-cache statistics** command in privileged EXEC mode.

show url-cache statistics

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **show url-cache statistics** command displays the following entries:

- Size—The size of the cache in kilobytes, set with the **url-cache** *size* option.
- Entries—The maximum number of cache entries based on the cache size.
- In Use—The current number of entries in the cache.
- Lookups—The number of times the ASA has looked for a cache entry.
- Hits—The number of times the ASA has found an entry in the cache.

You can view additional information about N2H2 Sentian or Websense filtering activity with the **show perfmon** command.

Examples

The following is sample output from the **show url-cache statistics** command:

```
hostname# show url-cache statistics

URL Filter Cache Stats
----------------------
 Size :     1KB
 Entries :     36
  In Use :     30
 Lookups :     300
 Hits :     290
```

Related Commands

Commands	Description
clear url-cache statistics	Removes **url-cache** command statements from the configuration.
filter url	Directs traffic to a URL filtering server.
url-block	Manage the URL buffers used for web server responses.
url-cache	Enables URL caching for responses received from an N2H2 or Websense server and sets the size of the cache.
url-server	Identifies an N2H2 or Websense server for use with the **filter** command.

show url-server

To display information about the URL filtering server, use the **show url-server** command in privileged EXEC mode.

show url-server statistics

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **show url-server statistics** command displays the URL server vendor; number of URLs total, allowed, and denied; number of HTTPS connections total, allowed, and denied; number of TCP connections total, allowed, and denied; and the URL server status.

The **show url-server** command displays the following information:

- For N2H2, **url-server (***if_name***) vendor n2h2 host** *local_ip* **port** *number* **timeout** *seconds* **protocol** [{**TCP | UDP**}{**version 1 | 4**}]
- For Websense, **url-server (***if_name***) vendor websense host** *local_ip* **timeout** *seconds* **protocol** [{**TCP | UDP**}]

Examples

The following is sample output from the **show url-server statistics** command:

```
hostname## show url-server statistics
Global Statistics:
------------------
URLs total/allowed/denied         994387/155648/838739
URLs allowed by cache/server      70483/85165
URLs denied by cache/server       801920/36819
HTTPSs total/allowed/denied       994387/155648/838739
HTTPs allowed by cache/server     70483/85165
HTTPs denied by cache/server      801920/36819
FTPs total/allowed/denied         994387/155648/838739
FTPs allowed by cache/server      70483/85165
```

```
FTPs denied by cache/server       801920/36819
Requests dropped                  28715
Server timeouts/retries           567/1350
Processed rate average 60s/300s   1524/1344 requests/second
Denied rate average 60s/300s      35648/33022 requests/second
Dropped rate average 60s/300s     156/189 requests/second

URL Server Statistics:
----------------------
192.168.0.1                         UP
Vendor                            websense
Port                              17035
Requests total/allowed/denied     366519/255495/110457
Server timeouts/retries           567/1350
Responses received                365952
Response time average 60s/300s    2/1 seconds/request
192.168.0.2                         DOWN
Vendor                            websense
Port                              17035
Requests total/allowed/denied     0/0/0
Server timeouts/retries           0/0
Responses received                0
Response time average 60s/300s    0/0 seconds/request
. . .
URL Packets Sent and Received Stats:
------------------------------------
Message                 Sent    Received
STATUS_REQUEST          411     0
LOOKUP_REQUEST          366519  365952
LOG_REQUEST             0       NA

Errors:
-------
RFC noncompliant GET method     0
URL buffer update failure       0

Semantics:
This command allows the operator to display url-server statistics organized on a global
and per-server basis.  The output is reformatted to provide: more-detailed information and
per-server organization.

Supported Modes:
privileged
router || transparent
single || multi/context

Privilege:
ATTR_ES_CHECK_CONTEXT

Debug support:
N/A

Migration Strategy (if any):
N/A
```

Related Commands

Commands	Description
clear url-server	Clears the URL filtering server statistics.
filter url	Directs traffic to a URL filtering server.
url-block	Manage the URL buffers used for web server responses.

url-cache	Enables URL caching while pending responses from an N2H2 or Websense server and sets the size of the cache.
url-server	Identifies an N2H2 or Websense server for use with the **filter** command.

show user-identity ad-agent

To display information about the AD Agent for the Identify Firewall, use the **show user-identity ad-agent** command in privileged EXEC mode.

show user-identity ad-agent [**statistics**]

Syntax Description

statistics	(Optional) Displays statistical information about the AD Agent.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

You can monitor the AD Agent component of the Identity Firewall.

Use the **show user-identity ad-agent** command to obtain troubleshooting information for the AD Agent. This command displays the following information about the primary and secondary AD Agents:

- Status of the AD Agents
- Status of the domains
- Statistics for the AD Agents

Table 60-1 Description of the Command Output

Type	Values	Description
Mode	Configuration mode	Specifies full download or on-demand download.
AD Agent IP Address	IP address	Displays the active AD Agent IP address.
Backup	IP address	Displays the backup AD Agent IP address.

Table 60-1 Description of the Command Output (continued)

Type	Values	Description
AD Agent Status	• Disabled • Down • Up (registered) • Probing	• The Identity Firewall is disabled. • The AD Agent is down. • The AD Agent is up and running. • The ASA is registered and the AD Agent is up and running. • The ASA is trying to connect to the AD Agent.
Authentication Port	udp/1645	Displays the AD Agent authentication port.
Accounting Port	udp/1646	Displays the AD Agent accounting port.
ASA Listening Port	udp/3799	Displays the ASA listening port.
Interface	Interface	Displays the interface that the ASA uses to contact the AD Agent.
IP Address	IP address	Displays the IP address that the ASA uses to contact the AD Agent.
Uptime	Time	Displays the AD Agent up time.
Average RTT	Milliseconds	Displays the average round trip time the ASA uses to contact the AD Agent.
Domain	Domain nickname Status: up Status: down	Displays the Microsoft Active Directory domain for the AD Agent.

Examples

This example shows how to display information for the AD Agent for the Identify Firewall:

```
hostname# show user-identity ad-agent
Primary AD Agent:
 Status                    up (registered)
 Mode:                     full-download
 IP address:               172.23.62.125
 Authentication port:      udp/1645
 Accounting port:          udp/1646
 ASA Listening port:       udp/3799
 Interface:                mgmt
 Up time:                  15 mins 41 secs
 Average RTT:              57 msec

Secondary AD Agent:
 Status                    up
 Mode:                     full-download
 IP address:               172.23.62.136
 Authentication port:      udp/1645
 Accounting port:          udp/1646
 ASA Listening port:       udp/3799
 Interface:                mgmt
 Up time:                  7 mins 56 secs
 Avg RTT:                  15 msec
```

Related Commands

Command	Description
clear user-identity ad-agent statistics	Clears the statistics data of AD Agents maintained by the ASA for the Identity Firewall.
user-identity enable	Creates the Cisco Identify Firewall instance.
show user-identity ad-group-members	Displays the group members in the domain of the AD Agent for the Identify Firewall.

show user-identity ad-group-members

To display the group members in the domain of the AD Agent for the Identify Firewall, use the **show user-identity ad-group-members** command in privileged EXEC mode.

show user-identity ad-group-members [*domain_nickname*\]*user_group_name* [**timeout seconds** *seconds*]

Syntax Description

domain_nickname	(Optional) Specifies the domain name for the Identity Firewall.
timeout seconds *seconds*	(Optional) Sets a timer for retrieving group member statistics and specifies the length of time for the timer.
user_group_name	(Optional) Specifies the group name from which to retrieve statistics.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

The **show user-identity ad-group-members** command displays the immediate members (the users and groups) of the specified user group.

Note This command does not display information for locally defined groups on the ASA configured with the **object-group user** command.

The ASA sends an LDAP query for the Active Directory groups configured on the Active Directory server. Running this command is equivalent to running an LDAP browser command that allows you to check members of a specified user group. ASA issues one level of LDAP query to retrieve the immediate members of the specified group in the distinguishedName format. Running this command does not update the ASA internal cache of imported user groups.

When you do not specify *domain_nickname*, the ASA displays information for the group that has *user_group_name* in the default domain. The argument *domain_nickname* can be the real domain nickname or LOCAL.

The group name is the AD group's unique sAMAccountName not the CN name. To display information for a specific group sAMAccountName, use the **show user-identity ad-groups filter** *filter_string* command to retrieve group's sAMAccountName.

Examples

This example shows how to display members of the group sample1 for the Identity Firewall:

```
hostname# show user-identity ad-group-member group.sample1
Domain:CSCO        AAA Server Group:  CISCO_AD_SERVER
Group Member List Retrieved Successfully
Number of Members in AD Group group.schiang: 12
dn: CN=user1,OU=Employees,OU=Cisco Users,DC=cisco,DC=com
dn: CN=user2,OU=Employees,OU=Cisco Users,DC=cisco,DC=com
...
```

Related Commands

Command	Description
user-identity enable	Creates the Cisco Identify Firewall instance.
show user-identity ad-groups	Displays information about the AD Agent for the Identify Firewall.

show user-identity ad-groups

To display information for a specific group for the Identify Firewall, use the **show user-identity ad-groups** command in privileged EXEC mode.

show user-identity ad-groups *domain_nickname* {**filter** *filter_string* | **import-user-group** [**count**]}

Syntax Description

count	(Optional) Displays the number of activated groups.
domain_nickname	Specifies the domain name for the Identity Firewall.
filter *filter_string*	Specifies to displays groups that contain the specified filter string in the CN attribute of the domain controller of the Microsoft Active Directory.
import-user-group	Displays only the activated groups for the Identity Firewall.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

When you run the **show user-identity ad-groups** command, the ASA sends an LDAP query to the Microsoft Active Directory to retrieve all user groups that are part of the specified domain nickname. The argument *domain_nickname* can be the real domain nickname or LOCAL. The ASA only retrieves groups that have the group objectclass attribute. The ASA displays the retrieved groups in distinguishedName format.

When you specify the **filter** *filter_string* keyword and argument, the ASA displays groups that contain the specified filter string in the CN attribute of the domain controller. Because the **access-list** and **object-group** commands only take sAMAccountName, you can run the **show user-identity ad-users filter** *filter_string* command to retrieve the sAMAccountName for a group. When you do not specify **filter** *filter_string*, the ASA displays all Active Directory groups.

When you specify the **import-user-group count** keywords, the ASA displays all Active Directory groups that are activated (because they are part an access-group, import-user-group, or service-policy configuration) and stored in the local database. The ASA only displays the sAMAccountName for the groups.

Examples

These examples show how to display user groups that are part of the specified domain nickname for the Identity Firewall:

```
hostname# show user-identity ad-groups CSCO filter sampleuser1
Domain: CSCO        AAA Server Group:       CISCO_AD_SERVER
Group list retrieved successfully
Number of Active Directory Groups       6
dn: CN=group.reg.sampleuser1,OU=Organizational,OU=Cisco Groups,DC=cisco,DC=com
sAMAccountName: group.reg.sampleuser1
dn: CN=group.temp.sampleuser1,OU=Organizational,OU=Cisco Groups,DC=cisco,DC=com
sAMAccountName: group.temp.sampleuser1
...


hostname# show user-identity ad-groups CSCO import-user-group count
Total AD groups in domain CSCO stored in local: 2


hostname# show user-identity ad-groups CSCO import-user-group
Domain: CSCO
Groups:
        group.SampleGroup1
        group.SampleGroup2
...
```

This example shows how to run the command to apply a filter string to the results from an access-list and object-group command. Running the **show user-identity ad-users CSCO filter SampleGroup1** command obtains the sAMAccountName of specified string:

```
hostname# show user-identity ad-users CSCO filter SampleGroup1
Domain:CSCO    AAA Server Group:  CISCO_AD_SERVER
User list retrieved successfully
Number of Active Directory Users: 2
dn: CN=SampleUser1,OU=Employees,OU=Cisco Users,DC=cisco,DC=com
sAMAccountName: SampleUser2
dn: CN=SAMPLEUSER2-WXP05,OU=Workstations,OU=Cisco Computers,DC=cisco,DC=com
sAMAccountName: SAMPLEUSER2-WXP05$
```

Related Commands

Command	Description
user-identity enable	Creates the Cisco Identify Firewall instance.

show user-identity ad-users

To display Microsoft Active Directory users for the Identify Firewall, use the **show user-identity ad-users** command in privileged EXEC mode.

show user-identity ad-users *domain_nickname* [**filter** *filter_string*]

Syntax Description

domain_nickname	Specifies the domain name for the Identity Firewall.
filter *filter_string*	(Optional) Specifies to displays users that contain the specified filter string in the CN attribute of the domain controller of the Microsoft Active Directory.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

When you run the **show user-identity ad-users** command, the ASA sends an LDAP query to the Microsoft Active Directory to retrieve all users that are part of the specified domain nickname. The argument *domain_nickname* can be the real domain nickname or LOCAL.

When you specify the **filter** *filter_string* keyword and argument, the ASA displays users that contain the specified filter string in the CN attribute of the domain controller. The ASA sends an LDAP query for the Active Directory groups configured on the Active Directory server.

The ASA only retrieves users that have the user objectclass attribute and the samAccountType attribute 805306368. Other objects, such as machine objects, can be included in the user objectclass; however, the samAccountType 805306368 filters out the non-user objects. When you do not specify a filter string, the ASA displays all Active Directory users.

The ASA displays the retrieved users in distinguishedName format.

Examples

This example shows how to display information about Active Directory users for the Identity Firewall:

```
hostname# show user-identity ad-users CSCO filter user
Domain: CSCO        AAA Server Group:  CISCO_AD_SERVER
User list retrieved successfully
```

```
Number of Active Directory Users: 10
dn: CN=sampleuser1,OU=Employees,OU=Cisco Users,DC=cisco,DC=com
sAMAccountName: sampleuser1
dn: CN=sampleuser2,OU=Employees,OU=Cisco Users,DC=cisco,DC=com
sAMAccountName: sampleuser2
dn: CN=user3,OU=Employees,OU=Cisco Users,DC=cisco,DC=com
sAMAccountName: user3
...
```

Related Commands

Command	Description
user-identity enable	Creates the Cisco Identify Firewall instance.

show user-identity group

To display the user groups configured for the Identify Firewall, use the **show user-identity group** command in privileged EXEC mode.

show user-identity group

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

Use the **show user-identity group** command to obtain troubleshooting information for the user groups configured for the Identity Firewall. The ASA sends an LDAP query for the Active Directory groups configured on the Active Directory server. This command displays the list of activated user groups in the following format:

domain\group_name

The ASA only displays top groups that are applied to a security policy. The maximum number of activated top groups is 256. Groups are activated when they are part an access-group, import-user-group, or service-policy configuration.

Examples

This example shows how to display the activated groups for the Identity Firewall:

```
hostname# show user-identity group
Group ID        Activated Group Name (Domain\\Group)
--------        ------------------------------------
       1        LOCAL\\og1
       2        LOCAL\\marketing
       3        CISCO\\group.sampleuser1
       4        IDFW\\grp1
...
```

Related Commands

Command	Description
user-identity enable	Creates the Cisco Identify Firewall instance.

show user-identity ip-of-user

To display the IP address for a specified user for the Identify Firewall, use the **show user-identity ip-of-user** command in privileged EXEC mode.

show user-identity ip-of-user [*domain_nickname*\]*user-name* [**detail**]

Syntax Description

detail	(Optional) Displays the detailed output about the user and IP address.
domain_nickname	(Optional) Specifies the domain name for the Identity Firewall.
user-name	Specifies the user for which to obtain an IP address.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

This command displays user information and the IP addresses for the specified user. Users can have more than one IP address associated with them.

When you do not specify the *domain_nickname* argument, the ASA displays information for the user with *user_name* in default domain. The argument *domain_nickname* can be the real domain nickname or LOCAL.

When you specify the **detail** keyword, the ASA displays the total number of active connections, the user-statistics period and the drops, and the input packets and output packets during the period over all IP addresses for the specified user. When you do not specify the **detail** option, the ASA displays only the domain nickname and status of each IP address.

Note The ASA displays detailed user statistics, such as received packets, sent packets and drops in the specified time period, only when you enable user-statistics scanning or accounting for the Identity Firewall. See the CLI configuration guide for information about configuring the Identity Firewall.

Examples

These examples show how to display IP addresses of specified users for the Identity Firewall:

```
hostname# show user-identity ip-of-user sampleuser1
```

```
CSCO\172.1.1.1 (Login)
CSCO\172.100.3.23 (Login)
CSCO\10.23.51.3 (Inactive)
```

```
hostname# show user-identity ip-of-user sampleuser1 detail
CSCO\172.1.1.1 (Login) Login time: 1440 mins;  Idle time: 10 mins; 2 active conns
CSCO\172.100.3.23 (Login) Login time: 20 mins;  Idle time: 10 mins; 10 active conns
CSCO\10.23.51.3 (Inactive) Login time: 3000 mins;  Idle time: 2040 mins; 8 active conns
Total number of active connections: 20
1-hour recv packets: 12560
1-hour sent packets: 32560
20-min drops: 560
```

```
hostname# show user-identity ip-of-user sampleuser2
ERROR: no such user
```

```
hostname# show user-identity ip-of-user sampleuser3
ERROR: no IP address, user not login now
```

IPv6 support

```
hostname# show user-identity ip-of-user sampleuser4
CSCO\172.1.1.1 (Login)
CSCO\8080:1:3::56 (Login)
CSCO\8080:2:3::34 (Inactive)
```

```
hostname# show user-identity ip-of-user sampleuser4 detail
CSCO\172.1.1.1 (Login) Login time: 1440 mins;  Idle time: 10 mins; 8 active conns
CSCO\8080:1:3::56 (Login) Login time: 20 mins;  Idle time: 10 mins; 12 active conns
CSCO\8080:2:3::34 (Inactive) Total number of active connections: 20
1-hour recv packets: 12560
1-hour sent packets: 32560
20-min drops: 560
```

Related Commands

Command	Description
user-identity enable	Creates the Cisco Identify Firewall instance.
show user-identity user-of-ip	Displays the user information associated with the specified IP address

show user-identity memory

To display the memory of various modules of the Identify Firewall, use the **show user-identity memory** command in privileged EXEC mode.

show user-identity memory

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

You can monitor the memory usage that the Identity Firewall consumes on the ASA. Running the s**how user-identity memory** command displays the memory for user records, group records, host records, and their associated hash table. The ASA also displays the memory used by the identity-based tmatch table.

The command displays the memory usage in bytes of various modules in the Identity Firewall:

- Users
- Groups
- User Statistics
- LDAP

The ASA sends an LDAP query for the Active Directory groups configured on the Active Directory server. The Active Directory server authenticates users and generates user logon security logs.

- AD Agent
- Miscellaneous
- Total Memory Usage

How you configure the Identity Firewall to retrieve user information from the AD Agent impacts the amount of memory used by the feature. You specify whether the ASA uses on demand retrieval or full download retrieval. Selecting On Demand has the benefit of using less memory as only users of received packets are queried and stored. See “Configuring Identity Options” in the CLI configuration guide for a description of these options.

Examples

This example shows how to display the memory status of the modules of the Identity Firewall:

```
hostname# show user-identity memory
Users:       22416048 bytes
Groups:           320 bytes
User stats:         0 bytes
LDAP:             300 bytes
AD agent:         500 bytes
Misc:           32428 bytes
Total:       22449596 bytes
Users:       22416048 bytes
```

Related Commands

Command	Description
user-identity enable	Creates the Cisco Identify Firewall instance.

show user-identity statistics

To display statistics for a user or user group for the Identify Firewall, use the **show user-identity statistics** command in privileged EXEC mode.

show user-identity statistics [**user** [*domain_nickname*\]*user_name* | **user-group** [*domain_nickname*\]*user_group_name*]

Syntax Description

domain_nickname	(Optional) Specifies the domain name for the Identity Firewall.
user *user_name*	(Optional) Specifies the user name from which to retrieve statistics.
user-group *domain_nickname*\ *user_group_name*	(Optional) Specifies the group name from which to retrieve statistics.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

Run the show **user-identity statistics** command to display the statistics for a user or user group.

When you do not specify the *domain_nickname* argument with the **user** keyword, the ASA displays information for the user with *user_name* in default domain.

When you do not specify *domain_nickname* with the **user-group** keyword, the ASA displays information for the group that has *user_group_name* in the default domain. The argument *domain_nickname* can be the real domain nickname or LOCAL.

Examples

These examples show how to display statistics about users for the Identity Firewall:

```
hostname# show user-identity statistics user
Current monitored users:11  Total not monitored users:0
                          Average(eps)    Current(eps) Trigger      Total events
User: CSCO\user1 tot-ses:4911 act-ses:1213 fw-drop:0 insp-drop:0 null-ses:4861 bad-acc:0
  20-min Recv attack:                4              10      14              4861
    1-hour Recv pkts:                  1              10        0             4901
User: CSCO\user2 tot-ses:2456 act-ses:607 fw-drop:0 insp-drop:0 null-ses:2431 bad-acc:0
```

```
  20-min Sent attack:                 4              10        4              4862
  1-hour Sent pkts:                     0              5         0              2451
...


hostname# show user-identity statistics user user1
Current                          Average(eps)    Current(eps) Trigger      Total events
User: -(user1-) tot-ses:4911 act-ses:1213 fw-drop:0 insp-drop:0 null-ses:4861 bad-acc:0
  20-min Recv attack:               4              10       14              4861
  1-hour Recv pkts:                  1              10       0              4901
```

Related Commands

Command	Description
user-identity enable	Creates the Cisco Identify Firewall instance.

show user-identity statistics top user

To display statistics for the top 10 users for the Identify Firewall, use the **show user-identity statistics top user** command in privileged EXEC mode.

show user-identity statistics top user

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

The **show user-identity statistics top user** command displays statistics for received EPS packets, sent EPS packets, and sent attacks for the top 10 users. For each user (displayed as *domain\user_name*), the ASA displays the average EPS packet, the current EPS packet, the trigger, and total events for that user.

Examples

This example shows how to display information about the top 10 users for the Identity Firewall:

```
hostname# show user-identity statistics top user
Top          Name   Id    Average(eps)    Current(eps) Trigger      Total events
  1-hour Recv pkts:
01    APAC\sampleuser1
                                  0               0       0               391
  1-hour Sent pkts:
01    APAC\sampleuser2
                                  0               0       0               196
02    CSCO\sampleuser3
                                  0               0       0               195
  10-min Sent attack:
01    CSCO\sampleuser4
                                  0               0       0               352
02    CSCO\sampleuser3
                                  0               0       0               350
```

Related Commands

Command	Description
user-identity enable	Creates the Cisco Identify Firewall instance.

show user-identity user active

To display the active users for the Identify Firewall, use the **show user-identity user active** command in privileged EXEC mode.

show user-identity user active [**domain** *domain_nickname* | **user-group** [*domain_nickname*\]*user_group_name* | **user** [*domain_nickname*\]*user_name*] [**list** [**detail**]]

Syntax Description

detail	(Optional) Displays the detailed output of the active user sessions.
domain *domain_nickname*	Displays statistics for the active users in a specified domain.
list	(Optional) Displays a list summarizing the active user statistics.
user *domain_nickname\user_name*	(Optional) Displays statistic for a specified user.
user-group *domain_nickname\user_group_name*	(Optional) Displays statistics for a specified user group.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

You can display information about all users contained in the IP-user mapping database used by the Identity Firewall.

The **show user-identity user active** command displays the following information for users:

- *domain\user_name*
- Active Connections
- Minutes Idle

The default domain name can be the real domain name, a special reserved word, or LOCAL. The Identity Firewall uses the LOCAL domain name for all locally defined user groups or locally defined users (users who log in and authenticate by using a VPN or web portal). When default domain is not specified, the default domain is LOCAL.

A user's name is appended with the number of minutes idle. The login time and idle time are stored on a per user basis instead of per the IP address of a user.

When the **user-group** keyword is specified, only the activated user-groups are displayed. Groups are activated when they are part an access-group, import-user-group, or service-policy configuration.

When you do not specify *domain_nickname* with the **user-group** keyword, the ASA displays information for the group that has *user_group_name* in the default domain.

Note When the **user-identity action domain-controller-down** is configured with the **disable-user-identity-rule** keyword and the specified domain is down, or when **user-identity action ad-agent-down** command is configured with the **disable-user-identity-rule** keyword and the AD agent is down, all the logged on users are displayed as disabled in the user statistics.

Note The ASA displays detailed user statistics, such as received packets, sent packets and drops in the specified time period, only when you enable user-statistics scanning or accounting for the Identity Firewall. See the CLI configuration guide for information about configuring the Identity Firewall.

Examples

The following examples show how to display information about active users for the Identity Firewall:

```
hostname# show user-identity user active
Total active users: 30  Total IP addresses: 35
  LOCAL: 0 users, 0 IP addresses
  cisco.com: 0 users, 0 IP addresses
  d1: 0 users, 0 IP addresses
  IDFW: 0 users, 0 IP addresses
  idfw.com: 0 users, 0 IP addresses
  IDFWTEST: 30 users, 35 IP addresses


hostname# show user-identity user active domain CSCO
Total active users: 48020 Total IP addresses:10000
  CSCO: 48020 users, 10000 IP addresses


hostname# show user-identity user active domain CSCO list
Total active users: 48020 Total IP addresses: 10000
  CSCO: 48020 users, 10000 IP addresses
   CSCO\sampleuser1: 20 active conns; idle 0 mins
   CSCO\member-1: 20 active conns; idle 5 mins
   CSCO\member-2: 20 active conns; idle 20 mins
   CSCO\member-3: 3 active conns; idle 101 mins
   …


hostname# show user-identity user active list
Total active users: 48032  Total IP addresses: 10000
   CSCO\sampleuser1: 20 active conns; idle 0 mins
   CSCO\member-1: 20 active conns; idle 6 mins
   APAC\sampleuser2: 20 active conns; idle 0 mins
   CSCO\member-2: 20 active conns; idle 1 mins
```

```
   CSCO\member-3: 20 active conns; idle 0 mins
   APAC\member-2: 20 active conns; idle 22 mins
   CSCO\member-4: 3 active conns; idle 101 mins
   …
hostname# show user-identity user active list detail
Total active users: 48032 Total IP addresses: 10010
  CSCO: 48020 users, 10000 IP addresses
  APAC: 12 users, 10 IP addresses
   CSCO\sampleuser1: 20 active conns; idle 0 mins
     172.1.1.1: login 360 mins, idle 0 mins, 15 active conns
     172.100.3.23: login 200 min, idle 15 mins , 5 active conns
     10.23.51.3: inactive
     1-hour recv packets: 12560
     1-hour sent packets: 32560
     20-min drops: 560
   CSCO\member-1: 4 active connections;  idle 350 mins
   …
  APAC\sampleuser12: 3 active conns; idle 101 mins
     172.1.1.1: login 360 mins, idle 101 mins, 1 active conns
     172.100.3.23: login 200 min, idle 150 mins, 2 active conns
     10.23.51.3: inactive
     1-hour recv packets: 12560
     1-hour sent packets: 32560
     20-min drops: 560


hostname# show user-identity user active list detail
Total users: 25  Total IP addresses: 5
   LOCAL\idfw: 0 active conns
    6.1.1.1: inactive
  cisco.com\sampleuser1: 0 active conns
  cisco.com\sampleuser2: 0 active conns
  cisco.com\sampleuser3: 0 active conns
    20.0.0.3: login 0 mins, idle 0 mins, 0 active conns (disabled)
  cisco.com\sampleuser4: 0 active conns; idle 0 mins
    20.0.0.2: login 0 mins, idle 0 mins, 0 active conns (disabled)
  cisco.com\sampleuser5: 0 active conns
  ...


hostname# show user-identity user active user sampleuser1 list detail
CSCO\sampleuser1: 20 active conns; idle 3 mins
     172.1.1.1: login 360 mins, idle 20 mins, 15 active conns
     172.100.3.23: login 200 mins, idle 3 mins, 5 active conns
     10.23.51.3: inactive
     1-hour recv packets: 12560
     1-hour sent packets: 32560
     20-min drops: 560


hostname# show user-identity user active user APAC\sampleuser2
APAC\sampleuser2: 20 active conns; idle 2 mins


hostname# show user-identity user active user-group APAC\\marketing list

   APAC\sampleuser1: 20 active conns; idle 2 mins
   APAC\member-1: 20 active conns; idle 0 mins
   APAC\member-2: 20 active conns; idle 0 mins
   APAC\member-3: 20 active conns; idle 6 mins
...

hostname# show user-identity user active user-group APAC\\inactive list
ERROR: group is not activated
```

Related Commands

Command	Description
clear user-identity active-user-database	Sets the status of a specified user, all users belong to a specified user group, or all users to logged out for the Identity Firewall.
user-identity enable	Creates the Cisco Identify Firewall instance.

show user-identity user all

To display statistics about users for the Identify Firewall, use the **show user-identity user all** command in privileged EXEC mode.

show user-identity user all [**list**] [**detail**]

Syntax Description

detail	(Optional) Displays the detailed output about all users for the Identity Firewall.
list	(Optional) Displays a list summarizing the statistics for all users for the Identity Firewall.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

Use the show user-identity all command to display information for all users contained in the IP-user mapping database used by the Identity Firewall.

When you include the detail keyword with this command and the command output shows an IP address is inactive, the IP address is not associated with the user. Searching for the user associated with that IP address will return an error.

Note When the **user-identity action domain-controller-down** is configured with the **disable-user-identity-rule** keyword and the specified domain is down, or when **user-identity action ad-agent-down** command is configured with the **disable-user-identity-rule** keyword and the AD agent is down, all the logged on users are displayed as disabled in the user statistics.

Note The ASA displays detailed user statistics, such as received packets, sent packets and drops in the specified time period, only when you enable user-statistics scanning or accounting for the Identity Firewall. See the CLI configuration guide for information about configuring the Identity Firewall.

Examples

The following examples show how to display statistics about all users for the Identity Firewall:

```
hostname# show user-identity user all list
Total inactive users: 1201  Total IP addresses: 100


hostname# show user-identity user all list
Total users: 7
  LOCAL\idfw: 0 active conns
  cisco.com\sampleuser1: 0 active conns
  cisco.com\sampleuser2: 0 active conns
  cisco.com\sampleuser3: 0 active conns
  cisco.com\sampleuser4: 0 active conns; idle 300 mins
  cisco.com\sampleuser5: 0 active conns
  cisco.com\sampleuser6: 0 active conns
  cisco.com\sampleuser7: 0 active conns


hostname# show user-identity user all list detail
Total users: 7 Total IP addresses: 3
  LOCAL\idfw: 0 active conns
    10.1.1.1: inactive
  cisco.com\sampleuser1: 0 active conns
  cisco.com\sampleuser2: 0 active conns
  cisco.com\sampleuser3: 0 active conns; idle 300 mins
    171.69.42.8: inactive
    10.0.0.2: login 300 mins, idle 300 mins, 5 active conns
  cisco.com\sampleuser4: 0 active conns
  cisco.com\sampleuser5: 0 active conns
  cisco.com\sampleuser6: 0 active conns
     1-hour recv packets: 12560
     1-hour sent packets: 32560
     20-min drops: 560
```

Related Commands

Command	Description
user-identity enable	Creates the Cisco Identify Firewall instance.

show user-identity user inactive

To display information about the inactive users for the Identify Firewall, use the **show user-identity user inactive** command in privileged EXEC mode.

show user-identity user inactive [**domain** *domain_nickname* | **user-group** [*domain_nickname*\]*user_group_name*]

Syntax Description

domain *domain_nickname*	(Optional) Displays statistics for the inactive users in the specified domain name for the Identity Firewall.
user-group *domain_nickname*\ *user_group_name*	(Optional) Displays statistics for the inactive users in the specified user group.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

Use the **show user-identity user inactive** command to display information about users who have no active traffic for longer than the value configured with the **user-identity inactive-user-timer** command.

When the **user-group** keyword is specified, only the activated user-groups are displayed. Groups are activated when they are part an access-group, import-user-group, or service-policy configuration.

When you do not specify *domain_nickname* with the **user-group** keyword, the ASA displays information for the group that has *user_group_name* in the default domain. The argument *domain_nickname* can be the real domain nickname or LOCAL.

Examples

These examples show how to display the status of inactive users for the Identity Firewall:

```
hostname# show user-identity user inactive
Total inactive users: 1201
   APAC\sampleuser1
   CSCO\sampleuser2
172.1.1.1: inactive     …
...
```

```
hostname# show user-identity user inactive domain CSCO
Total inactive users: 1101
    CSCO: 1101
   CSCO\sampleuser1
   CSCO\sampleuser2
   CSCO\sampleuser3
...


hostname# show user-identity user inactive user-group CSCO\\marketing
Total inactive users: 21
   CSCO\sampleuser1
   CSCO\sampleuser2
...
```

Related Commands

Command	Description
user-identity enable	Creates the Cisco Identify Firewall instance.
user-identity inactive-user-timer	Specifies the amount of time before a user is considered idle for the Cisco Identify Firewall instance.

show user-identity user-not-found

To display the IP addresses of the Active Directory users not found for the Identify Firewall, use the **show user-identity user-not-found** command in privileged EXEC mode.

show user-identity user-not-found

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

Use the **show user-identity user-not-found** command to display the IP addresses of the users who are not found in Microsoft Active Directory.

The ASA maintains a local user-not-found database of these IP addresses. The ASA keeps only the last 1024 packets (contiguous packets from the same source IP address are treated as one packet) of the user-not-found list and not the entire list in the database.

Examples

This example shows how to display information about not-found users for the Identity Firewall:

```
hostname# show user-identity user-not-found
172.13.1.2
171.1.45.5
169.1.1.2
172.13.12
…
```

Related Commands

Command	Description
clear user-identity user-not-found	Clears the ASA local user-not-found database for the Identity Firewall.

user-identity enable	Creates the Cisco Identify Firewall instance.
user-identity user-not-found	Enables user-not-found tracking for the Identify Firewall.

show user-identity user-of-group

To display the users of a specified user group for the Identify Firewall, use the **show user-identity user-of-group** command in privileged EXEC mode.

show user-identity user-of-group [*domain_nickname*\]*user_group_name*

Syntax Description

domain_nickname	Specifies the domain name for the Identity Firewall.
user_group_name	Specifies the user group for which to display statistics.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

Use the **show user-identity user-of-group** command to display users whose group ID matches the specified user group. (The ASA scans the IP-user hash list for this information and rather than sending an LDAP query to Active Directory. The AD Agent maintains a cache of user ID and IP address mappings and notifies the ASA of changes.)

The user group name you specify must be activated, meaning the group is an import user group (defined as a user group in an access list or service policy configuration) or a local user group (defined in an object-group user).

The group can have more than one user member. The members of the user group are all immediate members (including users and groups) of the specified group.

When you do not specify *domain_nickname* with the *user_group_name* argument, the ASA displays information for the group that has *user_group_name* in the default domain. The argument *domain_nickname* can be the real domain nickname or LOCAL.

When the command out put indicates a user's status is inactive, the user can be logged out or has never logged in.

Examples

These examples show how to display users of a specified user group for the Identity Firewall:

```
hostname# show user-identity user-of-group group.samplegroup1
```

```
Group: CSCO\\group.user1 Total users: 13
CSCO\user2 10.0.0.10(Login) 20.0.0.10(Inactive) …
CSCO\user3 10.0.0.11(Inactive)
CSCO\user4 10.0.0.12 (Login)
CSCO\user5 10.0.0.13 (Login)
CSCO\user6 10.0.0.14 (Inactive)
....
```

```
hostname# show user-identity user-of-group group.local1
Group: LOCAL\\group.local1    Total users: 2
CSCO\user1 10.0.4.12 (Login)
LOCAL\user2 10.0.3.13 (Login)
```

Related Commands

Command	Description
user-identity enable	Creates the Cisco Identify Firewall instance.

show user-identity user-of-ip

To display information about a user with a specific IP address for the Identify Firewall, use the **show user-identity user-of-ip** command in privileged EXEC mode.

show user-identity user-of-ip *ip_address* [**detail**]

Syntax Description

detail	(Optional) Displays the detailed output about user with the specified IP address.
ip_address	Indicates the IP address of the user for which to display information.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

Use the **show user-identity user-of-ip** command to display the user information associated with the specified IP address.

When you specify the **detail** keyword, the ASA displays user login time, idle time, the number of active connections, the user-statistics period and the drops, and the input packets and output packets during the period. When you do not specify the **detail** keyword, the ASA only displays the domain nickname, user name, and status.

When user status is inactive, the user can be logged out or has never logged in.

When you include the **detail** keyword with this command and the command output for an IP address displays an error, the IP address is inactive, meaning that the IP address is not associated with a user.

Note The ASA displays detailed user statistics, such as received packets, sent packets and drops in the specified time period, only when you enable user-statistics scanning or accounting for the Identity Firewall. See the CLI configuration guide for information about configuring the Identity Firewall.

Examples

These examples show how to display the status of the active users for the Identity Firewall:

```
hostname# show user-identity user-of-ip 172.1.1.1
```

```
CSCO\sampleuser1 (Login)
hostname# show user-identity user-of-ip 172.1.1.1 detail
CSCO\sampleuser1 (Login) Login time: 240 mins;  Idle time: 10 mins
Number of active connections: 20
1-hour sent packets: 3678
1-hour rcvd packets: 1256
20-min sent drops: 60


hostname# show user-identity user-of-ip 172.1.2.2 detail
CSCO\sampleuser2 (Login) Login time: 1440 mins; Idle time: 100 mins
Number of active connections: 0
1-hour sent packets: 3678
1-hour rcvd packets: 1256
20-min sent drops: 60


hostname# show user-identity user-of-ip 172.1.7.7
ERROR: no user with this IP address
```

IPv6 Support

```
hostname# show user-identity user-of-ip 8080:1:1::4
CSCO\sampleuser1 (Login)
hostname# show user-identity user-of-ip 8080:1:1::4 detail
CSCO\sampleuser1 (Login) Login time: 240 mins;  Idle time: 10 mins
Number of active connections: 20
1-hour sent packets: 3678
1-hour rcvd packets: 1256
20-min sent drops: 60


hostname# show user-identity user-of-ip 8080:1:1::6 detail
CSCO\sampleuser2 (Login) Login time: 1440 mins; Idle time: 100 mins
Number of active connections: 0
1-hour sent packets: 3678
1-hour rcvd packets: 1256
20-min sent drops: 60

hostname# show user-identity user-of-ip 8080:1:1::100
ERROR: no user with this IP address
```

Related Commands

Command	Description
user-identity enable	Creates the Cisco Identify Firewall instance.

show version

To display the software version, hardware configuration, license key, and related uptime data, use the **show version** command in user EXEC mode.

show version

Syntax Description

This command has no arguments or keywords.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
User EXEC	•	•	•	•	•

Command History

Release	Modification
7.2(1)	In stateful failover mode, an additional line showing cluster uptime is displayed.
8.3(1)	The output now includes whether a feature uses the permanent or time-based key, as well as the duration of the time-based key in use.
8.4(1)	Support for No Payload Encryption models (NPE) was added.

Usage Guidelines

The **show version** command allows you to display the software version, operating time since the last reboot, processor type, Flash partition type, interface boards, serial number (BIOS ID), activation key value, license type, and time stamp for when the configuration was last modified.

The serial number listed with the **show version** command is for the flash partition BIOS. This number is different from the serial number on the chassis. When you get a software upgrade, you will need the serial number that appears in the **show version** command, not the chassis number.

The failover cluster uptime value indicates how long a failover set has been running. If one unit stops running, the uptime value continues to increase as long as the active unit continues to operate. Therefore, it is possible for the failover cluster uptime to be greater than the individual unit uptime. If you temporarily disable failover, and then reenable it, the failover cluster uptime reports the time the unit was up before failover was disabled plus the time the unit was up while failover was disabled.

If you have a No Payload Encryption model, then when you view the license, VPN and Unified Communications licenses will not be listed.

For the Total VPN Peers on the ASA 5505, the total combined number of VPN sessions of all types depends on your licenses. If you enable AnyConnect Essentials, then the total is the model maximum of 25. If you enable AnyConnect Premium, then the total is the AnyConnect Premium value plus the Other

VPN value, not to exceed 25 sessions. Unlike other models, where the Other VPN value equals the model limit for all VPN sessions, the ASA 5505 has a lower Other VPN value than the model limit, so the total value can vary depending on the AnyConnect Premium license.

Examples

The following is sample output from the **show version** command, and shows the software version, hardware configuration, license key, and related uptime information. Note that in an environment where stateful failover is configured an additional line showing the failover cluster uptime is displayed. If failover is not configured, the line is not displayed. This display shows a warning message about minimum memory requirements.

```
**************************************************************************
**                                                                      **
**   *** WARNING *** WARNING *** WARNING *** WARNING *** WARNING ***    **
**                                                                      **
**          ----> Minimum Memory Requirements NOT Met! <----            **
**                                                                      **
**  Installed RAM:  512 MB                                              **
**  Required  RAM: 2048 MB                                              **
**  Upgrade part#: ASA5520-MEM-2GB=                                     **
**                                                                      **
**  This ASA does not meet the minimum memory requirements needed to    **
**  run this image. Please install additional memory (part number       **
**  listed above) or downgrade to ASA version 8.2 or earlier.           **
**  Continuing to run without a memory upgrade is unsupported, and      **
**  critical system features will not function properly.                **
**                                                                      **
**************************************************************************

Cisco Adaptive Security Appliance Software Version 8.4(1)
Device Manager Version 6.4(1)

Compiled on Thu 20-Jan-12 04:05 by builders
System image file is "disk0:/cdisk.bin"
Config file at boot was "disk0:/tomm_backup.cfg"

asa3 up 3 days 3 hours

Hardware:   ASA5520, 512 MB RAM, CPU Pentium 4 Celeron 2000 MHz
Internal ATA Compact Flash, 64MB
Slot 1: ATA Compact Flash, 128MB
BIOS Flash AT49LW080 @ 0xfff00000, 1024KB

Encryption hardware device : Cisco ASA-55x0 on-board accelerator (revision 0x0)
                             Boot microcode   : CN1000-MC-BOOT-2.00
                             SSL/IKE microcode: CNLite-MC-SSLm-PLUS-2.03
                             IPsec microcode  : CNlite-MC-IPSECm-MAIN-2.06
 0: Ext: GigabitEthernet0/0  : address is 0013.c480.82ce, irq 9
 1: Ext: GigabitEthernet0/1  : address is 0013.c480.82cf, irq 9
 2: Ext: GigabitEthernet0/2  : address is 0013.c480.82d0, irq 9
 3: Ext: GigabitEthernet0/3  : address is 0013.c480.82d1, irq 9
 4: Ext: Management0/0       : address is 0013.c480.82cd, irq 11
 5: Int: Not used            : irq 11
 6: Int: Not used            : irq 5

Licensed features for this platform:
Maximum Physical Interfaces       : Unlimited      perpetual
Maximum VLANs                     : 150            perpetual
Inside Hosts                      : Unlimited      perpetual
```

```
Failover                          : Active/Active  perpetual
VPN-DES                           : Enabled        perpetual
VPN-3DES-AES                      : Enabled        perpetual
Security Contexts                 : 10             perpetual
GTP/GPRS                          : Enabled        perpetual
AnyConnect Premium Peers          : 2              perpetual
AnyConnect Essentials             : Disabled       perpetual
Other VPN Peers                   : 750            perpetual
Total VPN Peers                   : 750            perpetual
Shared License                    : Enabled        perpetual
  Shared AnyConnect Premium Peers : 12000          perpetual
AnyConnect for Mobile             : Disabled       perpetual
AnyConnect for Cisco VPN Phone    : Disabled       perpetual
Advanced Endpoint Assessment      : Disabled       perpetual
UC Phone Proxy Sessions           : 12             62 days
Total UC Proxy Sessions           : 12             62 days
Botnet Traffic Filter             : Enabled        646 days
Intercompany Media Engine         : Disabled       perpetual

This platform has a Base license.
The flash permanent activation key is the SAME as the running permanent key.

Active Timebased Activation Key:
0xa821d549 0x35725fe4 0xc918b97b 0xce0b987b 0x47c7c285
Botnet Traffic Filter        : Enabled    646 days
0xyadayad2 0xyadayad2 0xyadayad2 0xyadayad2 0xyadayad2
Total UC Proxy Sessions      : 10         62 days

Serial Number: JMX0938K0C0
Running Permanent Activation Key: 0xce06dc6b 0x8a7b5ab7 0xa1e21dd4 0xd2c4b8b8 0xc4594f9c
Running Timebased Activation Key: 0xa821d549 0x35725fe4 0xc918b97b 0xce0b987b 0x47c7c285
Configuration register is 0x1
Configuration last modified by docs at 15:23:22.339 EDT Fri Oct 30 2012
```

The following message appears if you enter the **show version** command after the **eject** command has been executed, but the device has not been physically removed:

```
Slot 1: Compact Flash has been ejected!
It may be removed and a new device installed.
```

Related Commands

Command	Description
eject	Allows shutdown of external compact flash device before physical removal from the ASA.
show hardware	Displays detail hardware information.
show serial	Displays the hardware serial information.
show uptime	Displays how long the ASA has been up.

show vlan

To display all VLANs configured on the ASA, use the **show vlan** command in privileged EXEC mode.

show vlan

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example displays the configured VLANs:

```
hostname# show vlan
10-11,30,40,300
```

Related Commands

Command	Description
clear interface	Clears counters for the **show interface** command.
interface	Configures an interface and enters interface configuration mode.
show interface	Displays the runtime status and statistics of interfaces.

show vpn load-balancing

To display the runtime statistics for the VPN load-balancing virtual cluster configuration, use the **show vpn-load-balancing** command in global configuration, privileged EXEC, or VPN load-balancing mode.

show vpn load-balancing

Syntax Description

This command has no variables or arguments.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•		—
Privileged EXEC	•	—	•		—
Vpn load-balancing	•	—	•		—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	Added separate IPsec and SSL columns for both Load (%) display and Session display in the output example.
8.4(0)	New information was added to the displayed output.

Usage Guidelines

The **show vpn load-balancing** command displays statistical information for the virtual VPN load-balancing cluster. If the local device is not participating in the VPN load-balancing cluster, this command indicates that VPN load balancing has not been configured for this device.

The asterisk (*) in the output indicates the IP address of the ASA to which you are connected.

Examples

This example displays **show vpn load-balancing** command and its output for a situation in which the local device is participating in the VPN load-balancing cluster:

```
hostname# sh vpn load-balancing
------------------------------------------------------------------------
    Status     Role   Failover   Encryption        Cluster IP   Peers
------------------------------------------------------------------------
   Enabled   Master        n/a     Disabled 192.0.2.255   0

Peers:
------------------------------------------------------------------------
```

```
       Public IP     Role  Pri             Model  Load-Balancing Version
-------------------------------------------------------------------------
        192.0.2.255    Master    5          ASA-5520            3

Total License Load:
-------------------------------------------------------------------------
       Public IP    AnyConnect Premium/Essentials          Other VPN
                   -------------------------------   ---------------------
                        Limit    Used   Load          Limit    Used   Load
-------------------------------------------------------------------------
     192.0.2.255       750       0     0%            750       1     0%

Licenses Used By Inactive Sessions :
-------------------------------------------------------------------------
       Public IP    AnyConnect Premium/Essentials     Inactive Load
-------------------------------------------------------------------------
     192.0.2.255                      0                0%
```

On the primary device, the Total License Load output includes information about the primary and backup device; however, the backup device only shows information about itself and not the primary device. Thus, the primary device knows about all licensed members, but the licensed members themselves only know about their own licenses.

The output also contains a License Used by Inactive Session section. When an AnyConnect session goes inactive, the ASA keeps that session as long as the session has not terminated by normal means. That way, AnyConnect sessions can reconnect using the same webvpn cookie and not have to re-authenticate. The inactive sessions will remain in that state until either the AnyConnect client resumes the session or an idle timeout occurs. The licenses for those sessions are maintained for these inactive sessions and are represented in this License Used by Inactive Session section.

If the local device is not participating in the VPN load-balancing cluster, the **show vpn load-balancing** command shows a different result:

```
hostname(config)# show vpn load-balancing
VPN Load Balancing has not been configured.
```

Related Commands

Command	Description
clear configure vpn load-balancing	Removes **vpn load-balancing** command statements from the configuration.
show running-config vpn load-balancing	Displays the the current VPN load-balancing virtual cluster configuration.
vpn load-balancing	Enters vpn load-balancing mode.

show vpn-sessiondb

To display information about VPN sessions, use the **show vpn-sessiondb** command in privileged EXEC mode.The command includes options for displaying information in full or in detail, lets you specify type of sessions to display, and provides options to filter and sort the information. The syntax table and usage notes organize the choices accordingly

show vpn-sessiondb [**detail**] [**ospfv3**] [**failover**] [**full**] [**summary**] [**ratio** {**encryption | protocol**}] [**license-summary**] {**anyconnect | email-proxy | index** *indexnumber* **| l2l | ra-ikev1-ipsec | vpn-lb | webvpn**} [**filter** {**name** *username* **| ipaddress** *IPaddr* **| a-ipaddress** *IPaddr* **| p-ipaddress** *IPaddr* **| tunnel-group** *groupname* **| protocol** *protocol-name* **| encryption** *encryption-algo* **| inactive**}] [**sort** {**name | ipaddress | a-ipaddress | p-ip address | tunnel-group | protocol | encryption | inactivity**}]

Syntax Description

anyconnect	Displays AnyConnect VPN client sessions, including OSPFv3 session information.
detail	(Optional) Displays extended details about a session. For example, using the **detail** option for an IPsec session displays additional details such as the IKE hashing algorithm, authentication mode, and rekey interval. If you choose **detail**, and the **full** option, the ASA displays the detailed output in a machine-readable format.
email-proxy	Displays email-proxy sessions.
encryption	Displays the ratio of encryption types as a ratio of the total number of sessions.
failover	Displays the session information for the failover IPsec tunnels.
filter *filter_criteria*	(Optional) Filters the output to display only the information you specify by using one or more of the filter options. For a list of *filter_criteria* options, see the "Usage Guidelines" section.
full	(Optional) Displays streamed, untruncated output. Output is delineated by | characters and a || string between records.
index *indexnumber*	Displays a single session by index number. Specify the index number for the session, 1 - 750.
l2l	Displays VPN LAN-to-LAN session information.
license-summary	Displays a summary of license information about the ASA.
ospfv3	Displays OSPFv3 session information.
protocol	Displays the ratio of protocol types as a ratio of the total number of sessions.
ra-ikev1-ipsec	Displays IPsec IKEv1 sessions.
ratio	Displays the ratio of encryption or protocol types, depending on the keyword you choose, as a ratio of the total number of sessions.
sort *sort_criteria*	(Optional) Sorts the output according to the sort option you specify. For a list of *sort_criteria* options, see the "Usage Guidelines" section.
summary	Displays VPN session summary information.
vpn-lb	Displays VPN Load Balancing management sessions.
webvpn	Displays clientless SSL VPN sessions, including OSPFv3 session information.

Defaults

There is no default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•		—

Command History

Release	Modification
7.2(1)	This command was introduced.
8.0(2)	Added VLAN field description.
8.0(5)	Added **inactive** as a **filter** option and **inactivity** as a **sort** option.
8.2(1)	License information was added to the output.
8.4(1)	The **svc** keyword was changed to **anyconnect**. The **remote** keyword was changed to **ra-ikev1-ipsec.** The **ratio** keyword was added.
9.0(1)	The **ospfv3** keyword was added, and the OSPFv3 session information is now included in the VPN session summary. The **fitler a-ipversion** and **filter p-ipversion** options were added to allow filtering on all AnyConnect, LAN-to-LAN, and Clientless SSL VPN sessions assigned IPv4 or IPv6 addresses.
9.1(2)	We added the failover tunnel type and **failover** keyword to support failover IPsec tunnels. See the **failover ipsec pre-shared-key** command.
9.1(4)	Output when using the **detail anyconnect** options has been updated to reflect the assigned IPv6 address and to indicate the GRE Transport Mode security association when doing IKEv2 dual traffic.

Usage Guidelines

You can use the following options to filter and to sort the session display:

Filter/Sort Option	Description
filter a-ipaddress *IPaddr*	Filters the output to display information for the specified assigned IP address or addresses only.
sort a-ipaddress	Sorts the display by assigned IP addresses.
filter a-ipversion {v4 | v6}	Filters the output to display information about all AnyConnect sessions assigned IPv4 or IPv6 addresses.
filter encryption *encryption-algo*	Filters the output to display information for sessions using the specified encryption algorithm(s) only.
sort encryption	Sorts the display by encryption algorithm. Encryption algorithms include: aes128, aes192, aes256, des, 3des, rc4

Filter/Sort Option	Description
filter inactive	Filters inactive sessions which have gone idle and have possibly lost connectivity (due to hibernation, mobile device disconnection, and so on). The number of inactive sessions increases when TCP keepalives are sent from the ASA without a response from the AnyConnect client. Each session is time stamped with the SSL tunnel drop time. If the session is actively passing traffic over the SSL tunnel, 00:00m:00s is displayed. **Note** The ASA does not send TCP keepalives to some devices (such as the iphone, ipad, and ipod) in order to save battery life, so the failure detection cannot distinguish between a disconnect and a sleep. For this reason, the inactivity counter remains as 00:00:00 by design.
sort inactivity	Sorts inactive sessions.
filter ipaddress *IPaddr*	Filters the output to display information for the specified inside IP address or addresses only.
sort ipaddress	Sorts the display by inside IP addresses.
filter name *username*	Filters the output to display sessions for the specified username(s).
sort name	Sorts the display by usernames in alphabetical order.
filter p-address *IPaddr*	Filters the output to display information for the specified outside IP address only.
sort p-address	Sorts the display by the specified outside IP address or addresses.
filter p-ipversion {v4 | v6}	Filters the output to display information about all AnyConnect sessions originating from endpoints with IPv4 or IPv6 addresses.
filter protocol *protocol-name*	Filters the output to display information for sessions using the specified protocol(s) only.
sort protocol	Sorts the display by protocol. Protocols include: IKE, IMAP4S, IPsec, IPsecLAN2LAN, IPsecLAN2LANOverNatT, IPsecOverNatT, IPsecoverTCP, IPsecOverUDP, SMTPS, userHTTPS, vcaLAN2LAN
filter tunnel-group *groupname*	Filters the output to display information for the specified tunnel group(s) only.
sort tunnel-group	Sorts the display by tunnel group.
|	Modifies the output, using the following arguments: {begin | include | exclude | grep | [-v]} {reg_exp}

Examples

The following is sample output from the **show vpn-sessiondb** command:

```
hostname# show vpn-sessiondb

--------------------------------------------------------------------------
VPN Session Summary
--------------------------------------------------------------------------
                            Active : Cumulative : Peak Concur : Inactive
                          ----------------------------------------------
AnyConnect Client           :      1 :         78 :           2 :        0
  SSL/TLS/DTLS              :      1 :         72 :           2 :        0
  IKEv2 IPsec               :      0 :          6 :           1 :        0
```

```
Clientless VPN               :      0 :          8 :           2
  Browser                    :      0 :          8 :           2
-----------------------------------------------------------------------------
Total Active and Inactive    :      1             Total Cumulative :     86
Device Total VPN Capacity    :    750
Device Load                  :     0%
-----------------------------------------------------------------------------

-----------------------------------------------------------------------------
Tunnels Summary
-----------------------------------------------------------------------------
                              Active : Cumulative : Peak Concurrent
                             ------------------------------------------
IKEv2                        :      0 :          6 :               1
IPsecOverNatT                :      0 :          6 :               1
Clientless                   :      0 :         17 :               2
AnyConnect-Parent            :      1 :         69 :               2
SSL-Tunnel                   :      1 :         75 :               2
DTLS-Tunnel                  :      1 :         56 :               2
-----------------------------------------------------------------------------
Totals                       :      3 :        229
-----------------------------------------------------------------------------

-----------------------------------------------------------------------------
IPv6 Usage Summary
-----------------------------------------------------------------------------
                              Active : Cumulative : Peak Concurrent
                             ------------------------------------------
AnyConnect SSL/TLS/DTLS      :        :            :
  IPv6 Peer                  :      1 :         41 :           2
  Tunneled IPv6              :      1 :         70 :           2
AnyConnect IKEv2             :        :            :
  IPv6 Peer                  :      0 :          4 :           1
Clientless                   :        :            :
  IPv6 Peer                  :      0 :          1 :           1
-----------------------------------------------------------------------------
```

The following is sample output from the **show vpn-sessiondb detail l2l** command, showing detailed information about LAN-to-LAN sessions:

```
hostname# show vpn-sessiondb detail l2l
Session Type: LAN-to-LAN Detailed

Connection   : 172.16.0.0
Index        : 1
IP Addr      : 172.16.0.0
Protocol     : IKEv2 IPsec
Encryption   : IKEv2: (1)AES256  IPsec: (1)AES256
Hashing      : IKEv2: (1)SHA1  IPsec: (1)SHA1
Bytes Tx     : 240                    Bytes Rx     : 160
Login Time   : 14:50:35 UTC Tue May 1 2012
Duration     : 0h:00m:11s
IKEv2 Tunnels: 1
IPsec Tunnels: 1

IKEv2:
  Tunnel ID    : 1.1
  UDP Src Port : 500                   UDP Dst Port : 500
  Rem Auth Mode: preSharedKeys
  Loc Auth Mode: preSharedKeys
  Encryption   : AES256                Hashing      : SHA1
  Rekey Int (T): 86400 Seconds         Rekey Left(T): 86389 Seconds
  PRF          : SHA1                  D/H Group    : 5
```

```
  Filter Name  :
  IPv6 Filter  :

IPsec:
  Tunnel ID    : 1.2
  Local Addr   : 10.0.0.0/255.255.255.0
  Remote Addr  : 209.165.201.30/255.255.255.0
  Encryption   : AES256                 Hashing      : SHA1
  Encapsulation: Tunnel                 PFS Group    : 5
  Rekey Int (T): 120 Seconds            Rekey Left(T): 107 Seconds
  Rekey Int (D): 4608000 K-Bytes        Rekey Left(D): 4608000 K-Bytes
  Idle Time Out: 30 Minutes             Idle TO Left : 29 Minutes
  Bytes Tx     : 240                    Bytes Rx     : 160
  Pkts Tx      : 3                      Pkts Rx      : 2

NAC:
  Reval Int (T): 0 Seconds              Reval Left(T): 0 Seconds
  SQ Int (T)   : 0 Seconds              EoU Age(T)   : 13 Seconds
  Hold Left (T): 0 Seconds              Posture Token:
  Redirect URL :
```

The following is sample output from the **show vpn-sessiondb detail index 1** command:

```
AsaNacDev# show vpn-sessiondb detail index 1

Session Type: Remote Detailed

Username     : user1
Index        : 1
Assigned IP  : 192.168.2.70           Public IP    : 10.86.5.114
Protocol     : IPsec                  Encryption   : AES128
Hashing      : SHA1
Bytes Tx     : 0                      Bytes Rx     : 604533
Client Type  : WinNT                  Client Ver   : 4.6.00.0049
Tunnel Group : bxbvpnlab
Login Time   : 15:22:46 EDT Tue May 10 2005
Duration     : 7h:02m:03s
Filter Name  :
NAC Result   : Accepted
Posture Token: Healthy
VM Result    : Static
VLAN         : 10

IKE Sessions: 1 IPsec Sessions: 1 NAC Sessions: 1

IKE:
  Session ID   : 1
  UDP Src Port : 500                    UDP Dst Port : 500
  IKE Neg Mode : Aggressive             Auth Mode    : preSharedKeysXauth
  Encryption   : 3DES                   Hashing      : MD5
  Rekey Int (T): 86400 Seconds          Rekey Left(T): 61078 Seconds
  D/H Group    : 2

IPsec:
  Session ID   : 2
  Local Addr   : 0.0.0.0
  Remote Addr  : 192.168.2.70
  Encryption   : AES128                 Hashing      : SHA1
  Encapsulation: Tunnel
  Rekey Int (T): 28800 Seconds          Rekey Left(T): 26531 Seconds
  Bytes Tx     : 0                      Bytes Rx     : 604533
  Pkts Tx      : 0                      Pkts Rx      : 8126
```

```
NAC:
  Reval Int (T): 3000 Seconds           Reval Left(T): 286 Seconds
  SQ Int (T)   : 600 Seconds            EoU Age (T)  : 2714 Seconds
  Hold Left (T): 0 Seconds              Posture Token: Healthy
  Redirect URL : www.cisco.com
```

The following is sample output from the **show vpn-sessiondb ospfv3** command:

```
asa# show vpn-sessiondb ospfv3

Session Type: OSPFv3 IPsec

Connection   :
Index        : 1                      IP Addr      : 0.0.0.0
Protocol     : IPsec
Encryption   : IPsec: (1)none         Hashing      : IPsec: (1)SHA1
Bytes Tx     : 0                      Bytes Rx     : 0
Login Time   : 15:06:41 EST Wed Feb 1 2012
Duration     : 1d 5h:13m:11s
```

The following is sample output from the **show vpn-sessiondb detail ospfv3** command:

```
asa# show vpn-sessiondb detail ospfv3

Session Type: OSPFv3 IPsec Detailed

Connection   :
Index        : 1                      IP Addr      : 0.0.0.0
Protocol     : IPsec
Encryption   : IPsec: (1)none         Hashing      : IPsec: (1)SHA1
Bytes Tx     : 0                      Bytes Rx     : 0
Login Time   : 15:06:41 EST Wed Feb 1 2012
Duration     : 1d 5h:14m:28s
IPsec Tunnels: 1

IPsec:
  Tunnel ID    : 1.1
  Local Addr   : ::/0/89/0
  Remote Addr  : ::/0/89/0
  Encryption   : none                   Hashing      : SHA1
  Encapsulation: Transport
  Idle Time Out: 0 Minutes              Idle TO Left : 0 Minutes
  Bytes Tx     : 0                      Bytes Rx     : 0
  Pkts Tx      : 0                      Pkts Rx      : 0

NAC:
  Reval Int (T): 0 Seconds              Reval Left(T): 0 Seconds
  SQ Int (T)   : 0 Seconds              EoU Age(T)   : 105268 Seconds
  Hold Left (T): 0 Seconds              Posture Token:
  Redirect URL :
```

The following is sample output from the **show vpn-sessiondb summary** command:

```
asa# show vpn-sessiondb summary
----------------------------------------------------------------------------
VPN Session Summary
----------------------------------------------------------------------------
                             Active : Cumulative : Peak Concur : Inactive
                           ------------------------------------------------
OSPFv3 IPsec               :      1 :          1 :           1
----------------------------------------------------------------------------
Total Active and Inactive  :      1             Total Cumulative :      1
Device Total VPN Capacity  :  10000
Device Load                :     0%
```

```
--------------------------------------------------------------------------
```

The following is sample output from the **show vpn-sessiondb det anyconnect** command:

```
asa1# sho vpn-sessiondb det anyconnect

Session Type: AnyConnect Detailed

Username     : rashmi                 Index        : 2
Assigned IP  : 65.2.1.100             Public IP    : 75.2.1.60
Assigned IPv6: 2001:1000::10
Protocol     : IKEv2 IPsecOverNatT AnyConnect-Parent
License      : AnyConnect Premium
Encryption   : IKEv2: (1)3DES  IPsecOverNatT: (1)3DES  AnyConnect-Parent: (1)none
Hashing      : IKEv2: (1)SHA1  IPsecOverNatT: (1)SHA1  AnyConnect-Parent: (1)none
Bytes Tx     : 0                      Bytes Rx     : 21248
Pkts Tx      : 0                      Pkts Rx      : 238
Pkts Tx Drop : 0                      Pkts Rx Drop : 0
Group Policy : DfltGrpPolicy          Tunnel Group : test1
Login Time   : 22:44:59 EST Tue Aug 13 2013
Duration     : 0h:02m:42s
Inactivity   : 0h:00m:00s
NAC Result   : Unknown
VLAN Mapping : N/A                    VLAN         : none

IKEv2 Tunnels: 1
IPsecOverNatT Tunnels: 1
AnyConnect-Parent Tunnels: 1

AnyConnect-Parent:
  Tunnel ID    : 2.1
  Public IP    : 75.2.1.60
  Encryption   : none                   Hashing      : none
  Auth Mode    : userPassword
  Idle Time Out: 400 Minutes            Idle TO Left : 397 Minutes
  Conn Time Out: 500 Minutes            Conn TO Left : 497 Minutes
  Client OS    : Windows
  Client Type  : AnyConnect
  Client Ver   : 3.1.05050

IKEv2:
  Tunnel ID    : 2.2
  UDP Src Port : 64251                  UDP Dst Port : 4500
  Rem Auth Mode: userPassword
  Loc Auth Mode: rsaCertificate
  Encryption   : 3DES                   Hashing      : SHA1
  Rekey Int (T): 86400 Seconds          Rekey Left(T): 86241 Seconds
  PRF          : SHA1                   D/H Group    : 2
  Filter Name  : mixed1
  Client OS    : Windows

IPsecOverNatT:
  Tunnel ID    : 2.3
  Local Addr   : 75.2.1.23/255.255.255.255/47/0
  Remote Addr  : 75.2.1.60/255.255.255.255/47/0
  Encryption   : 3DES                   Hashing      : SHA1
  Encapsulation: Transport, GRE
  Rekey Int (T): 28400 Seconds          Rekey Left(T): 28241 Seconds
  Idle Time Out: 400 Minutes            Idle TO Left : 400 Minutes
  Conn Time Out: 500 Minutes            Conn TO Left : 497 Minutes
  Bytes Tx     : 0                      Bytes Rx     : 21326
  Pkts Tx      : 0                      Pkts Rx      : 239

NAC:
```

```
Reval Int (T): 0 Seconds              Reval Left(T): 0 Seconds
SQ Int (T)   : 0 Seconds              EoU Age(T)   : 165 Seconds
Hold Left (T): 0 Seconds              Posture Token:
Redirect URL :
```

As shown in the examples, the fields displayed in response to the **show vpn-sessiondb** command vary, depending on the keywords you enter. Table 60-2 explains these fields.

Table 60-2 show vpn-sessiondb Command Fields

Field	Description
Auth Mode	Protocol or mode used to authenticate this session.
Bytes Rx	Total number of bytes received from the remote peer or client by the ASA.
Bytes Tx	Number of bytes transmitted to the remote peer or client by the ASA.
Client Type	Client software running on the remote peer, if available.
Client Ver	Version of the client software running on the remote peer.
Connection	Name of the connection or the private IP address.
D/H Group	Diffie-Hellman Group. The algorithm and key size used to generate IPsec SA encryption keys.
Duration	Elapsed time (HH:MM:SS) between the session login time and the last screen refresh.
EAPoUDP Session Age	Number of seconds since the last successful posture validation.
Encapsulation	Mode used to apply IPsec ESP (Encapsulation Security Payload protocol) encryption and authentication (that is, the part of the original IP packet that has ESP applied).
Encryption	Data encryption algorithm this session is using, if any.
EoU Age (T)	EAPoUDP Session Age. Number of seconds since the last successful posture validation.
Filter Name	Username specified to restrict the display of session information.
Hashing	Algorithm used to create a hash of the packet, which is used for IPsec data authentication.
Hold Left (T)	Hold-Off Time Remaining. 0 seconds if the last posture validation was successful. Otherwise, the number of seconds remaining before the next posture validation attempt.
Hold-Off Time Remaining	0 seconds if the last posture validation was successful. Otherwise, the number of seconds remaining before the next posture validation attempt.
IKE Neg Mode	IKE (IPsec Phase 1) mode for exchanging key information and setting up SAs: Aggressive or Main.
IKE Sessions	Number of IKE (IPsec Phase 1) sessions; usually 1. These sessions establish the tunnel for IPsec traffic.
Index	Unique identifier for this record.
IP Addr	Private IP address assigned to the remote client for this session. This is also known as the “inner” or “virtual” IP address. It lets the client appear to be a host on the private network.

Table 60-2 show vpn-sessiondb Command Fields (continued)

Field	Description
IPsec Sessions	Number of IPsec (Phase 2) sessions, which are data traffic sessions through the tunnel. Each IPsec remote-access session can have two IPsec sessions: one consisting of the tunnel endpoints, and one consisting of the private networks reachable through the tunnel.
License Information	Shows information about the shared SSL VPN license.
Local IP Addr	IP address assigned to the local endpoint of the tunnel (that is the interface on the ASA).
Login Time	Date and time (MMM DD HH:MM:SS) that the session logged in. Time is displayed in 24-hour notation.
NAC Result	State of Network Admission Control Posture Validation. It can be one of the following: • Accepted—The ACS successfully validated the posture of the remote host. • Rejected—The ACS could not successfully validate the posture of the remote host. • Exempted—The remote host is exempt from posture validation according to the Posture Validation Exception list configured on the ASA. • Non-Responsive—The remote host did not respond to the EAPoUDP Hello message. • Hold-off—The ASA lost EAPoUDP communication with the remote host after successful posture validation. • N/A—NAC is disabled for the remote host according to the VPN NAC group policy. • Unknown—Posture validation is in progress.
NAC Sessions	Number of Network Admission Control (EAPoUDP) sessions.
Packets Rx	Number of packets received from the remote peer by the ASA.
Packets Tx	Number of packets transmitted to the remote peer by the ASA.
PFS Group	Perfect Forward Secrecy group number.
Posture Token	Informational text string configurable on the Access Control Server. The ACS downloads the posture token to the ASA for informational purposes to aid in system monitoring, reporting, debugging, and logging. A typical posture token is Healthy, Checkup, Quarantine, Infected, or Unknown.
Protocol	Protocol the session is using.
Public IP	Publicly routable IP address assigned to the client.
Redirect URL	Following posture validation or clientless authentication, the ACS downloads the access policy for the session to the ASA. The Redirect URL is an optional part of the access policy payload. The ASA redirects all HTTP (port 80) and HTTPS (port 443) requests for the remote host to the Redirect URL if it is present. If the access policy does not contain a Redirect URL, the ASA does not redirect HTTP and HTTPS requests from the remote host. Redirect URLs remain in force until either the IPsec session ends or until posture revalidation, for which the ACS downloads a new access policy that can contain a different redirect URL or no redirect URL.

Table 60-2 show vpn-sessiondb Command Fields (continued)

Field	Description
Rekey Int (T)	Lifetime of the IPsec (IKE) SA encryption keys.
Rekey Left (T)	Lifetime remaining of the IPsec (IKE) SA encryption keys.
Rekey Time Interval	Lifetime of the IPsec (IKE) SA encryption keys.
Remote IP Addr	IP address assigned to the remote endpoint of the tunnel (that is the interface on the remote peer).
Reval Int (T)	Revalidation Time Interval. Interval in seconds required between each successful posture validation.
Reval Left (T)	Time Until Next Revalidation. 0 if the last posture validation attempt was unsuccessful. Otherwise, the difference between the Revalidation Time Interval and the number of seconds since the last successful posture validation.
Revalidation Time Interval	Interval in seconds required between each successful posture validation.
Session ID	Identifier for the session component (subsession). Each SA has its own identifier.
Session Type	Type of session: LAN-to-LAN or Remote
SQ Int (T)	Status Query Time Interval. Time in seconds allowed between each successful posture validation or status query response and the next status query response. A status query is a request made by the ASA to the remote host to indicate whether the host has experienced any changes in posture since the last posture validation.
Status Query Time Interval	Time in seconds allowed between each successful posture validation or status query response and the next status query response. A status query is a request made by the ASA to the remote host to indicate whether the host has experienced any changes in posture since the last posture validation.
Time Until Next Revalidation	0 if the last posture validation attempt was unsuccessful. Otherwise, the difference between the Revalidation Time Interval and the number of seconds since the last successful posture validation.
Tunnel Group	Name of the tunnel group referenced by this tunnel for attribute values.
UDP Dst Port or UDP Destination Port	Port number used by the remote peer for UDP.
UDP Src Port or UDP Source Port	Port number used by the ASA for UDP.
Username	User login name with which the session is established.
VLAN	Egress VLAN interface assigned to this session. The ASA forwards all traffic to that VLAN. One of the following elements specifies the value: • Group policy • Inherited group policy

Related Commands

Command	Description
show running-configuration vpn-sessiondb	Displays the VPN session database running configuration (max-other-vpn-limit, max-anyconnect-premium-or-essentials-limit).
show vpn-sessiondb ratio	Displays VPN session encryption or protocol ratios.
show vpn-sessiondb summary	Displays a summary of all VPN sessions.

show vpn-sessiondb license-summary

To display a summary of VPN license information for the ASA, use the **show vpn-sessiondb license-summary** command in privileged EXEC mode.

show vpn-sessiondb license-summary

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	—	•	•

Command History

Release	Modification
8.4(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Examples

The following is sample output for the **show vpn-sessiondb ratio** command, with **encryption** as the argument:

```
hostname(config)# show vpn-sessiondb license-summary
----------------------------------------------------------------------------
VPN Licenses and Configured Limits Summary
----------------------------------------------------------------------------
                                  Status : Installed : Burst:  Limit
                                 ---------------------------------------
AnyConnect Premium               :  ENABLED :      750 :         20 :   NONE
AnyConnect Essentials            : DISABLED :      750 :         10 :   NONE
Other VPN (Available by Default) :  ENABLED :      750 :       750 :   NONE
Shared License Server            :  DISABLED
Shared License Participant: DISABLED
AnyConnect for Mobile            : DISABLED(Requires Premium or Essentials)
Advanced Endpoint Assessment     : DISABLED(Requires Premium)
VPN-3DES-AES                     :  ENABLED
VPN-DES                          :  ENABLED
AnyConnect for Cisco VPN Phone   : DISABLED
----------------------------------------------------------------------------

----------------------------------------------------------------------------
VPN Licenses Usage Summary
----------------------------------------------------------------------------
                         Local : Shared :   All  :   Peak :  Eff.  :
```

```
                        In Use : In Use : In Use : In Use :  Limit : Usage
                       ------------------------------------------------------
AnyConnect Premium     :      0 :      0 :      0 :      0 :      2 :    0%
  AnyConnect Client    :                :      0 :      0          :    0%
    AnyConnect Mobile  :                :      0 :      0          :    0%
  Clientless VPN       :                :      0 :      0          :    0%
Other VPN              :                :      0 :      0 :    750 :    0%
  Cisco VPN Client/    :                :      0 :      0          :    0%
  L2TP Clients
  Site-to-Site VPN     :                :      0 :      0          :    0%
-------------------------------------------------------------------------------

-------------------------------------------------------------------------------
Shared License Network Summary
-------------------------------------------------------------------------------
AnyConnect Premium
  Total shared licenses in network                              :     12000
  Shared licenses held by this participant                      :         0
  Shared licenses held by all participants in the network       :         0
-------------------------------------------------------------------------------


hostname(config)#
```

Related Commandss

Command	Description
show vpn-sessiondb	Displays sessions with or without extended details, optionally filtered and sorted by criteria you specify.
show vpn-sessiondb summary	Displays a session summary, including total current session, current sessions of each type, peak and total cumulative, maximum concurrent sessions

show vpn-sessiondb ratio

To display the ratio of current sessions as a percentage by protocol or encryption algorithm, use the **show vpn-sessiondb ratio** command in privileged EXEC mode.

show vpn-sessiondb ratio {protocol | encryption} [filter *groupname***]**

Syntax Description

encryption	Identifies the encryption protocols you want to display. Refers to phase 2 encryption. Encryption algorithms include:	
	aes128	des
	aes192	3des
	aes256	rc4
filter *groupname*	Filters the output to include session ratios only for the tunnel group you specify.	
protocol	Identifies the protocols you want to display. Protocols include:	
	IKEv1	L2TPOverIPsecOverNatT
	IKEv2	Clientless
	IPsec	Port-Forwarding
	IPsecLAN2LAN	IMAP4S
	IPsecLAN2LANOverNatT	POP3S
	IPsecOverNatT	SMTPS
	IPsecOverTCP	AnyConnect-Parent
	IPsecOverUDP	SSL-Tunnel
	L2TPOverIPsec	DTLS-Tunnel

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	—	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.
8.4(1)	The output was enhanced to include IKEv2.
9.0(1)	Support for multiple context mode was added.

Examples

The following is sample output for the **show vpn-sessiondb ratio** command, with **encryption** as the argument:

```
hostname# show vpn-sessiondb ratio encryption
Filter Group         : All
Total Active Sessions: 5
Cumulative Sessions  : 9

Encryption               Sessions       Percent
none                     0               0%
DES                      1              20%
3DES                     0               0%
AES128                   4        80%
AES192                   0               0%
AES256                   0               0%
```

The following is sample output for the **show vpn-sessiondb ratio** command with **protocol** as the argument:

```
hostname# show vpn-sessiondb ratio protocol
Filter Group         : All
Total Active Sessions: 6
Cumulative Sessions  : 10

Protocol                 Sessions       Percent
IKE                      0               0%
IPsec                    1              20%
IPsecLAN2LAN             0               0%
IPsecLAN2LANOverNatT     0               0%
IPsecOverNatT            0               0%
IPsecOverTCP             1 20%
IPsecOverUDP             0               0%
L2TP                     0               0%
L2TPOverIPsec            0               0%
L2TPOverIPsecOverNatT    0               0%
PPPoE                    0               0%
vpnLoadBalanceMgmt       0               0%
userHTTPS                0               0%
IMAP4S                   3 30%
POP3S                    0               0%
SMTPS                    3 30%
```

Related Commandss

Command	Description
show vpn-sessiondb	Displays sessions with or without extended details, optionally filtered and sorted by criteria you specify.
show vpn-sessiondb summary	Displays a session summary, including total current session, current sessions of each type, peak and total cumulative, maximum concurrent sessions

show vpn-sessiondb summary

To display the number of IPsec, Cisco AnyConnect, and NAC sessions, use the **show vpn-sessiondb summary** command in privileged EXEC mode.

show vpn-sessiondb summary

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	—	•	•

Command History

Release	Modification
7.0(7)	This command was introduced.
8.0(2)	Added the VLAN Mapping Sessions table.
8.0(5)	Added new output for active, cumulative, peak concurrent, and inactive.
9.0(1)	Support for multiple context mode was added.

Examples

The following is sample output for the **show vpn-sessiondb summary** command with one IPsec IKEv1 and one clientless session:

Note A device in standby does not differentiate active from inactive sessions.

```
hostname# show vpn-sessiondb summary

VPN Session Summary
Sessions:
                         Active :Cumulative :Peak Concurrent :Inactive :
    Clientless VPN            :       1:         2:             1
    Browser                   :       1:         2:             1
    IKEv1 IPsec/L2TP IPsec0   :       1:         1:             1

Total Active and Inactive: 2      Total Cumulative: 3
Device Total VPN Capacity: 10000
Device Load            : 0%

License Information:
    Shared VPN License Information:
        SSL VPN                     : 12000
            Allocated to this device  :    0
            Allocated to network      :    0
            Device limit              : 750
```

```
IPsec   :   750     Configured :750    Active : 0     Load : 0%
SSL VPN :   750     Configured :750    Active : 0     Load : 0%
                        Active : Cumulative : Peak Concurrent
SSL VPN         :           0 :         1 :            1
Totals          :           0 :         1 :

Active NAC Sessions:
  Accepted                : 0
  Rejected                : 0
  Exempted                : 0
  Non-responsive          : 0
Hold-off                : 0
  N/A                     : 0

Active VLAN Mapping Sessions:
  Static                  : 0
  Auth                    : 0
  Access                  : 0
  Guest                   : 0
  Quarantine              : 0
  N/A                     : 0

F1-asa1#
```

You can use the SSL output to determine the physical device resources in respect to the number of licenses. A single user session may occupy a license but could use multiple tunnels. For example, an AnyConnect user with DTLS often has the parent session, SSL tunnel, and DTLS tunnels associated with it.

Note The parent session represents when the client is not actively connected. It does not represent an encrypted tunnel. If the client shuts down, or sleeps, IPsec, IKE, TLS, and DLTLS tunnels are closed, but the parent session remains until the idle time or maximum connect time limit is reached. This enables the user to reconnect without reauthenticating.

With this example, you would see three tunnels allocated on the device, even if only one user is logged in. An IPsec LAN-to-LAN tunnel counts as one session, and it allows many host-to-host connections through the tunnel. An IPsec remote access session is one remote access tunnel that supports one user connection.

From the output you can see which sessions are active. If a session has no underlying tunnels associated to it, the status is *waiting to resume* mode (displayed as Clientless in the session output). This mode means that dead peer detection from the head-end device has started, and the head-end device can no longer communicate with the client. When you encounter this condition, you can hold the session to allow the user to roam networks, go to sleep, recover the session, and so on. These sessions count towards the actively connected sessions (from a license standpoint) and are cleared with a user idle timeout, a user logging out, or a resumption of the original session.

The Active SSL VPN With Client column shows the number of active connections passing data. The Cumulative SSL VPN With Client column shows the number of active sessions that have been established. It includes those that are inactive and increments only when a new session is added. The Peak Concurrent SSL VPN With Client column shows the peak number of concurrently active sessions that are passing data. The Inactive SSL VPN With Client column shows how long the AnyConnect client was disconnected. You can use this Inactivity timeout value to determine when licenses are expired. The ASA can then determine whether reconnection is possible. These are AnyConnect sessions without an active SSL tunnel associated with them.

Table 60-3 explains the fields in the Active Sessions and Session Information tables.

Table 60-3 show vpn-sessiondb summary Command: Active Sessions and Session Information Fields

Field	Description
Concurrent Limit	Maximum number of concurrently active sessions permitted on this ASA.
Cumulative Sessions	Number of sessions of all types since the ASA was last booted or reset.
LAN-to-LAN	Number of IPsec LAN-to-LAN sessions that are currently active.
Peak Concurrent	Highest number of sessions of all types that were concurrently active since the ASA was last booted or reset.
Percent Session Load	Percentage of the vpn session allocation in use. This value equals the Total Active Sessions divided by the maximum number of sessions available, displayed as a percentage. The maximum number of sessions available can be either of the following: • Maximum number of IPsec and SSL VPN sessions licensed • **vpn-sessiondb ?** (maximum number of sessions configured) • **max-anyconnect-premium-or-essentials-limit** (maximum AnyConnect Premium or Essentials session limit) • **max-other-vpn-limit** (maximum other VPN session limit)
Remote Access	ra-ikev1-ipsec—Number of IKEv1 IPsec remote-access user, L2TP over IPsec, and IPsec through NAT sessions that are currently active.
Total Active Sessions	Number of sessions of all types that are currently active.

The Active NAC Sessions table shows general statistics about remote peers that are subject to posture validation.

The Cumulative NAC Sessions table shows general statistics about remote peers that are or have been subject to posture validation.

Table 60-2 explains the fields in the Active NAC Sessions and Total Cumulative NAC Sessions tables.

Table 60-4 show vpn-sessiondb summary Command: Active NAC Sessions and Total Cumulative NAC Sessions Fields

Field	Description
Accepted	Number of peers that passed posture validation and have been granted an access policy by an Access Control Server.
Exempted	Number of peers that are not subject to posture validation because they match an entry in the Posture Validation Exception list configured on the ASA.
Hold-off	Number of peers for which the ASA lost EAPoUDP communications after a successful posture validation. The NAC Hold Timer attribute (Configuration > VPN > NAC) determines the delay between this type of event and the next posture validation attempt for each peer.
N/A	Number of peers for which NAC is disabled according to the VPN NAC group policy.

Table 60-4 show vpn-sessiondb summary Command: Active NAC Sessions and Total Cumulative NAC Sessions Fields (continued)

Field	Description
Non-responsive	Number of peers not responsive to Extensible Authentication Protocol (EAP) over UDP requests for posture validation. Peers on which no CTA is running do not respond to these requests. If the ASA configuration supports clientless hosts, the Access Control Server downloads the access policy associated with clientless hosts to the ASA for these peers. Otherwise, the ASA assigns the NAC default policy.
Rejected	Number of peers that failed posture validation or were not granted an access policy by an Access Control Server.

The Active VLAN Mapping Sessions table shows general statistics about remote peers that are subject to posture validation.

The Cumulative VLAN Mapping Sessions table shows general statistics about remote peers that are or have been subject to posture validation.

Table 60-5 explains the fields in the Active VLAN Mapping Sessions and Cumulative VLAN Mapping Sessions tables.

Table 60-5 show vpn-sessiondb summary Command: Active VLAN Mapping Sessions and Cumulative Active VLAN Mapping Sessions Fields

Field	Description
Access	Reserved for future use.
Auth	Reserved for future use.
Guest	Reserved for future use.
N/A	Reserved for future use.
Quarantine	Reserved for future use.
Static	This field shows the number of VPN sessions assigned to a pre-configured VLAN.

Related Commands

Command	Description
show vpn-sessiondb	Displays sessions with or without extended details, optionally filtered and sorted by criteria you specify.
show vpn-sessiondb ratio	Displays VPN session encryption or protocol ratios.

show wccp

To display global statistics related to Web Cache Communication Protocol (WCCP), use the **show wccp** command in privileged EXEC mode.

show wccp {**web-cache** | *service-number*}[*detail* | *view*]

Syntax Description

detail	(Optional) Displays information about the router and all web caches.
service-number	(Optional) Identification number of the web-cache service group being controlled by the cache. The number can be from 0 to 256. For web caches using Cisco Cache Engines, the reverse proxy service is indicated by a value of 99.
view	(Optional) Displays other members of a particular service group have or have not been detected.
web-cache	Specifies statistics for the web-cache service.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to display WCCP information:

```
hostname(config)# show wccp
Global WCCP information:
    Router information:
        Router Identifier:                   -not yet determined-
        Protocol Version:                    2.0

    Service Identifier: web-cache
        Number of Cache Engines:             0
        Number of routers:                   0
        Total Packets Redirected:            0
        Redirect access-list:                foo
        Total Connections Denied Redirect:   0
        Total Packets Unassigned:            0
        Group access-list:                   foobar
        Total Messages Denied to Group:      0
```

```
        Total Authentication failures:       0
        Total Bypassed Packets Received:     0
hostname(config)#
```

Related Commands

Commands	Description
wccp	Enables support of WCCP with service groups.
wccp redirect	Enables support of WCCP redirection.

show webvpn csd

To determine whether CSD is enabled, display the CSD version in the running configuration, determine what image is providing the Host Scan package, and to test a file to see if it is a valid CSD distribution package, use the **show webvpn csd** command in privileged EXEC mode.

show webvpn csd [**image** *filename*]

Syntax Description

filename	Specifies the name of a file to test for validity as a CSD distribution package. It must take the form **csd_n.n.n-k9.pkg**.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC mode	•	—	•		—

Command History

Release	Modification
7.1(1)	This command was introduced.

Examples

Use the **show webvpn csd** command to check the operational status of CSD. The CLI responds with a message indicating if CSD is installed and if it is enabled, if Host Scan is installed and if it is enabled, and which image is supplying the Host Scan package if there is both a CSD package and a Host Scan package installed.

```
hostname# show webvpn csd
```

These are the messages you could receive:

- `Secure Desktop is not installed`

  `Hostscan is not installed`

- `Secure Desktop version n.n.n.n is currently installed but not enabled`

  `Standalone Hostscan package is not installed (Hostscan is currently installed via the CSD package but not enabled)`

- `Secure Desktop version n.n.n.n is currently installed and enabled`

  `Standalone Hostscan package is not installed (Hostscan is currently installed and enabled via the CSD package)`

The message, "`Secure Desktop version n.n.n.n is currently installed ...`" means that the image is loaded on the ASA and in the running configuration. The image can be either **enabled** or **not enabled**. You can go to webvpn configuration mode and enter the **csd enable** command to enable CSD.

The messaage, "`(Hostscan is currently installed and enabled via the CSD package)`" means that the Host Scan package delivered with the CSD package is the Host Scan package in use.

- `Secure Desktop version n.n.n.n is currently installed and enabled`
  `Hostscan version n.n.n.n is currently installed and enabled`

  The message, "`Secure Desktop version n.n.n.n is currently installed and enabled Hostscan version n.n.n.n is currently installed and enabled`" means that both CSD and a Host Scan package, delivered either as a standalone package or as part of an AnyConnect image, are installed. If Host Scan is enabled and both CSD and an AnyConnect image with Host Scan, or a standalone Host Scan package, are installed and enabled, the Host Scan package delivered as a standalone package or as part of an AnyConnect image takes precedence over the one provided with a CSD package.

- `Secure Desktop version n.n.n.n is currently installed but not enabled`
  `Hostscan version n.n.n.n is currently installed but not enabled`

Use the **show webvpn csd image** ***filename*** command to test a file to determine if a CSD distribution package is valid.

hostname# **`show webvpn csd image csd_n.n.n-k9.pkg`**

The CLI responds with one of the following messages when you enter this command:

- `ERROR: This is not a valid Secure Desktop image file.`

  Make sure the filename is in the form the form **csd_n.n.n_k9.pkg**. If the csd package does not have this naming convention, replace the file with one obtained from the following website:

  http://www.cisco.com/cgi-bin/tablebuild.pl/securedesktop

  Then reenter the **show webvpn csd image** command. If the image is valid, use the **csd image** and **csd enable** commands in webvpn configuration mode to install and enable CSD.

- ```
  This is a valid Cisco Secure Desktop image:
  Version  : 3.6.172.0
  Hostscan Version  : 3.6.172.0
  Built on : Wed Feb 23 15:46:44 MST 2011
  ```

  Note that the CLI provides both the version and date stamp if the file is valid.

Related Commands

Command	Description
csd enable	Enables CSD for management and remote user access.
csd image	Copies the CSD image named in the command, from the flash drive specified in the path to the running configuration.
  ```

show webvpn group-alias

To display the aliases for a specific tunnel-group or for all tunnel groups, use the **group-alias** command in privileged EXEC mode.

show webvpn group-alias [*tunnel-group*]

Syntax Description

tunnel-group	(Optional) Specifies a particular tunnel group for which to show the group aliases.

Defaults

If you do not enter a tunnel-group name, this command displays all the aliases for all the tunnel groups.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•		—

Command History

Release	Modification
7.1	This command was introduced.

Usage Guidelines

WebVPN must be running when you enter the **show webvpn group-alias** command.

Each tunnel group can have multiple aliases or no alias.

Examples

The following example shows the **show webvpn group-alias** command that displays the aliases for the tunnel group “devtest” and the output of that command:

```
hostname# show webvpn group-alias devtest
QA
Fra-QA
```

Related Commands

Command	Description
group-alias	Specifies one or more URLs for the group.
tunnel-group webvpn-attributes	Enters the config-webvpn mode for configuring WebVPN tunnel-group attributes.

show webvpn group-url

To display the URLs for a specific tunnel-group or for all tunnel groups, use the **group-url** command in privileged EXEC mode.

show webvpn group-url [*tunnel-group*]

Syntax Description

tunnel-group	(Optional) Specifies a particular tunnel group for which to show the URLs.

Defaults

If you do not enter a tunnel-group name, this command displays all the URLs for all the tunnel groups.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•		—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

WebVPN must be running when you enter the **show webvpn group-url** command. Each group can have multiple URLs or no URL.

Examples

The following example shows the **show webvpn group-url** command that displays the URLs for the tunnel group "frn-eng1" and the output of that command:

```
hostname# show webvpn group-url
http://www.cisco.com
https://fra1.example.com
https://fra2.example.com
```

Related Commands

Command	Description
group-url	Specifies one or more URLs for the group.
tunnel-group webvpn-attributes	Enters the config-webvpn mode for configuring WebVPN tunnel-group attributes.

show webvpn kcd

Use the **show webvpn kcd** command in webvpn configuration mode to display the Domain Controller information and Domain join status on the ASA.

show webvpn kcd

Syntax Description

None.

Defaults

There are no defaults for this command.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
webvpn configuration	•	—	•		—

Command History

Release	Modification
8.4(1)	This command was introduced.

Usage Guidelines

The **show webvpn kcd** command in webvpn configuration mode displays the Domain Controller information and Domain join status on the ASA.

Examples

The following example shows important details to note from the **show webvpn kcd** command and the interpretation of the status message.

This example shows that the registration is under way and not finished:

```
hostname# show webvpn kcd
Kerberos Realm: CORP.TEST.INTERNAL
Domain Join: In-Progress
```

This example shows that a registration was successful and that the ASA has joined the domain:

```
hostname# show webvpn kcd
Kerberos Realm: CORP.TEST.INTERNAL
Domain Join: Complete
```

Related Commands

Command	Description
clear aaa kerberos	Clears all the Kerberos tickets cached on the ASA.
kcd-server	Allows the ASA to join an Active Directory domain.
show aaa kerberos	Displays all the Kerberos tickets cached on the ASA.

show webvpn sso-server

To display the operating statistics for Webvpn single sign-on servers, use the **show webvpn sso-server** command in privileged EXEC mode.

show webvpn sso-server [*name*]

Syntax Description

name	Optionally specifies the name of the SSO server. The server name must be between four and 31 characters in length.

Defaults

No default values or behavior.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Config-webvpn-sso-saml	•	—	•		—
Config-webvpn-sso-siteminder	•	—	•		—
Privileged EXEC	•	—	•		—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

Single sign-on support, available only for WebVPN, lets users access different secure services on different servers without entering a username and password more than once. The **show webvpn sso-server** command displays operating statistics for any and all SSO servers configured on the security device.

If no SSO server name argument is entered, statistics for all SSO servers display.

Examples

The following example, entered in privileged EXEC mode, displays statistics for a SiteMinder-type SSO server named example:

```
hostname# show webvpn sso-server example
Name: example
Type: SiteMinder
Authentication Scheme Version: 1.0
Web Agent URL: http://www.example.com/webvpn
Number of pending requests:        0
Number of auth requests:           0
Number of retransmissions:         0
Number of accepts:                 0
```

```
Number of rejects:                 0
Number of timeouts:                0
Number of unrecognized responses:  0
hostname#
```

The following example of the command issued without a specific SSO server name, displays statistics for all configured SSO servers on the ASA:

```
hostname#(config-webvpn)# show webvpn sso-server
Name: high-security-server
Type: SAML-v1.1-POST
Assertion Consumer URL:
Issuer:
Number of pending requests:        0
Number of auth requests:           0
Number of retransmissions:         0
Number of accepts:                 0
Number of rejects:                 0
Number of timeouts:                0
Number of unrecognized responses:  0
Name: my-server
Type: SAML-v1.1-POST
Assertion Consumer URL:
Issuer:
Number of pending requests:        0
Number of auth requests:           0
Number of retransmissions:         0
Number of accepts:                 0
Number of rejects:                 0
Number of timeouts:                0
Number of unrecognized responses:  0
Name: server
Type: SiteMinder
Authentication Scheme Version: 1.0
Web Agent URL:
Number of pending requests:        0
Number of auth requests:           0
Number of retransmissions:         0
Number of accepts:                 0
Number of rejects:                 0
Number of timeouts:                0
Number of unrecognized responses:  0
asa1(config-webvpn)#
```

Related Commands

Command	Description
max-retry-attempts	Configures the number of times the ASA retries a failed SSO authentication attempt.
policy-server-secret	Creates a secret key used to encrypt authentication requests to a SiteMinder-type SSO server.
request-timeout	Specifies the number of seconds before a failed SSO authentication attempt times out.
sso-server	Creates a single sign-on server.
web-agent-url	Specifies the SSO server URL to which the ASA makes SiteMinder SSO authentication requests.

show webvpn anyconnect

To view information about SSL VPN client images installed on the ASA and loaded in cache memory, or to test a file to see if it is a valid client image, use the **show webvpn anyconnect** command from privileged EXEC mode.

show webvpn anyconnect [**image** *filename*]

Syntax Description

image *filename*	Specifies the name of a file to test as an SSL VPN client image file.

Defaults

This command has no default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•		—

Command History

Release	Modification
7.1(1)	This command was introduced.
8.4(1)	The **show webvpn anyconnect** form of the command replaced **show webvpn svc**.

Usage Guidelines

Use the **show webvpn anyconnect** command to view information about SSL VPN client images that are loaded in cache memory and available for download to remote PCs. Use the **image** *filename* keyword and argument to test a file to see if it is a valid image. If the file is not a valid image, the following message appears:

```
ERROR: This is not a valid SSL VPN Client image file.
```

Examples

The following example shows the output of the **show webvpn anyconnect** command for currently installed images:

```
hostname# show webvpn anyconnect
1. windows.pkg 1
SSL VPN Client
CISCO STC win2k+ 1.1.0
1,1,0,107
Thu 04/14/2005 09:27:54.43
2. window2.pkg 2
CISCO STC win2k+ 1.1.0
1,1,0,107
Thu 04/14/2005 09:27:54.43
```

The following example shows the output of the **show webvpn anyconnect image** *filename* command for a valid image:

```
hostname(config-webvpn)# show webvpn anyconnect image sslclient-win-1.0.2.127.pkg

This is a valid SSL VPN Client image:
  CISCO STC win2k+ 1.0.0
  1,0,2,127
  Fri 07/22/2005 12:14:45.43
```

Related Commands

Command	Description
anyconnect enable	Enables the ASA to download the SSL VPN client to remote PCs.
anyconnect image	Causes the security appliance to load SSL VPN client files from flash memory to cache memory, and specifies the order in which the security appliance downloads portions of the client image to the remote PC as it attempts to match the client image with the operating system.
vpn-tunnel-protocol	Enables specific VPN tunnel protocols for remote VPN users, including SSL used by an SSL VPN client.

show xlate

To display information about NAT sessions (xlates), use the **show xlate** command in privileged EXEC mode.

show xlate [**global** *ip1*[**-***ip2*] [**netmask** *mask*]] [**local** *ip1*[**-***ip2*] [**netmask** *mask*]] [**gport** *port1*[**-***port2*]] [**lport** *port1*[**-***port2*]] [**interface** *if_name*] [**type** *type*]

show xlate count

Syntax Description

count	Displays the translation count.
global *ip1*[**-***ip2*]	(Optional) Displays the active translations by mapped IP address or range of addresses.
gport *port1*[*-port2*]	Displays the active translations by the mapped port or range of ports.
interface *if_name*	(Optional) Displays the active translations by interface.
local *ip1*[**-***ip2*]	(Optional) Displays the active translations by real IP address or range of addresses.
lport *port1*[*-port2*]	Displays the active translations by real port or range of ports.
netmask *mask*	(Optional) Specifies the network mask to qualify the mapped or real IP addresses.
state *state*	(Optional) Displays the active translations by type. You can enter one or more of the following types: • **static** • **portmap** • **dynamic** • **twice-nat** When specifying more than one type, separate the types with a space.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.3(1)	This command was modified to support the new NAT implementation.
8.4(3)	The **e** flag was added to show use of extended PAT. In addition, the destination address to which the xlate is extended is shown.
9.0(1)	This command was modified to support IPv6.

Usage Guidelines

The **show xlate** command displays the contents of the translation slots.

When the **vpnclient** configuration is enabled and the inside host is sending out DNS requests, the **show xlate** command may list multiple xlates for a static translation.

In an ASA clustering environment, up to three xlates may be duplicated to different nodes in the cluster to handle a PAT session. One xlate is created on the unit that owns the connection. One xlate is created on a different unit to backup the PAT address. Finally, one xlate exists on the director that replicates the flow. In the case where the backup and director is the same unit, two instead of three xlates may be created.

Examples

The following is sample output from the **show xlate** command.

```
hostname# show xlate
5 in use, 5 most used
Flags: D - DNS, i - dynamic, r - portmap, s - static, I - identity, T - twice
       e - extended
NAT from any:10.90.67.2 to any:10.9.1.0/24
    flags idle 277:05:26 timeout 0:00:00
NAT from any:10.1.1.0/24 to any:172.16.1.0/24
    flags idle 277:05:26 timeout 0:00:00
NAT from any:10.90.67.2 to any:10.86.94.0
    flags idle 277:05:26 timeout 0:00:00
NAT from any:10.9.0.9, 10.9.0.10/31, 10.9.0.12/30,
    10.9.0.16/28, 10.9.0.32/29, 10.9.0.40/30,
    10.9.0.44/31 to any:0.0.0.0
    flags idle 277:05:26 timeout 0:00:00
NAT from any:10.1.1.0/24 to any:172.16.1.0/24
    flags idle 277:05:14 timeout 0:00:00
```

The following is sample output from the **show xlate** command showing use of the **e - extended** flag and the destination address to which the xlate is extended.

```
hostname# show xlate
1 in use, 1 most used
Flags: D - DNS, i - dynamic, r - portmap, s - static, I - identity, T - twice
       e - extended
ICMP PAT from inside:10.2.1.100/6000 to outside:172.16.2.200/6000(172.16.2.99)
    flags idle 0:00:06 timeout 0:00:30
TCP PAT from inside:10.2.1.99/5 to outside:172.16.2.200/5(172.16.2.90)
    flags idle 0:00:03 timeout 0:00:30
UDP PAT from inside:10.2.1.101/1025 to outside:172.16.2.200/1025(172.16.2.100)
    flags idle 0:00:10 timeout 0:00:30
```

The following is sample output from the **show xlate** command showing a translation from IPv4 to IPv6.

```
hostname# show xlate
1 in use, 2 most used
NAT from outside:0.0.0.0/0 to in:2001::/96
flags sT idle 0:16:16 timeout 0:00:00
```

Related Commands

Command	Description
clear xlate	Clears current translation and connection information.
show conn	Displays all active connections.
show local-host	Displays the local host network information.
show uauth	Displays the currently authenticated users.

CHAPTER 61

shun through snmp-server user Commands

shun

To block connections from an attacking host, use the **shun** command in privileged EXEC mode. To disable a shun, use the **no** form of this command.

shun *source_ip* [*dest_ip source_port dest_port* [*protocol*]] [**vlan** *vlan_id*]

no shun *source_ip* [**vlan** *vlan_id*]

Syntax Description

dest_port	(Optional) Specifies the destination port of a current connection that you want to drop when you place the shun on the source IP address.
dest_ip	(Optional) Specifies the destination address of a current connection that you want to drop when you place the shun on the source IP address.
protocol	(Optional) Specifies the IP protocol of a current connection that you want to drop when you place the shun on the source IP address, such as UDP or TCP. By default, the protocol is 0 (any protocol).
source_ip	Specifies the address of the attacking host. If you only specify the source IP address, all future connections from this address are dropped; current connections remain in place. To drop a current connection and also place the shun, specify the additional parameters of the connection. Note that the shun remains in place for all future connections from the source IP address, regardless of destination parameters.
source_port	(Optional) Specifies the source port of a current connection that you want to drop when you place the shun on the source IP address.
vlan_id	(Optional) Specifies the VLAN ID where the source host resides.

Defaults

The default protocol is 0 (any protocol).

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **shun** command lets you block connections from an attacking host. All future connections from the source IP address are dropped and logged until the blocking function is removed manually or by the Cisco IPS sensor. The blocking function of the **shun** command is applied whether or not a connection with the specified host address is currently active.

If you specify the destination address, source and destination ports, and the protocol, then you drop the matching connection as well as placing a shun on all future connections from the source IP address; all future connections are shunned, not just those that match these specific connection parameters.

You can only have one **shun** command per source IP address.

Because the **shun** command is used to block attacks dynamically, it is not displayed in the ASA configuration.

Whenever an interface configuration is removed, all shuns that are attached to that interface are also removed. If you add a new interface or replace the same interface (using the same name), then you must add that interface to the IPS sensor if you want the IPS sensor to monitor that interface.

Examples

The following example shows that the offending host (10.1.1.27) makes a connection with the victim (10.2.2.89) with TCP. The connection in the ASA connection table reads as follows:

```
10.1.1.27, 555-> 10.2.2.89, 666 PROT TCP
```

Apply the **shun** command using the following options:

```
hostname# shun 10.1.1.27 10.2.2.89 555 666 tcp
```

The command deletes the specific current connection from the ASA connection table and also prevents all future packets from 10.1.1.27 from going through the ASA.

Related Commands

Command	Description
clear shun	Disables all the shuns that are currently enabled and clears the shun statistics.
show conn	Shows all active connections.
show shun	Displays the shun information.

shutdown

To disable an interface, use the **shutdown** command in interface configuration mode. To enable an interface, use the **no** form of this command.

shutdown

no shutdown

Syntax Description

This command has no arguments or keywords.

Defaults

All physical interfaces are shut down by default. Allocated interfaces in security contexts are not shut down in the configuration.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was moved from a keyword of the **interface** command to an interface configuration mode command.

Usage Guidelines

The default state of an interface depends on the type and the context mode.

In multiple context mode, all allocated interfaces are enabled by default, no matter what the state of the interface is in the system execution space. However, for traffic to pass through the interface, the interface also has to be enabled in the system execution space. If you shut down an interface in the system execution space, then that interface is down in all contexts that share it.

In single mode or in the system execution space, interfaces have the following default states:

- Physical interfaces—Disabled.
- Redundant Interfaces—Enabled. However, for traffic to pass through the redundant interface, the member physical interfaces must also be enabled.
- Subinterfaces—Enabled. However, for traffic to pass through the subinterface, the physical interface must also be enabled.

Note This command only disables the software interface. The physical link remains up, and the directly connected device is still recognized as being up even when the corresponding interface is configured with the **shutdown** command.

Examples

The following example enables a main interface:

```
hostname(config)# interface gigabitethernet0/2
hostname(config-if)# speed 1000
hostname(config-if)# duplex full
hostname(config-if)# nameif inside
hostname(config-if)# security-level 100
hostname(config-if)# ip address 10.1.1.1 255.255.255.0
hostname(config-if)# no shutdown
```

The following example enables a subinterface:

```
hostname(config)# interface gigabitethernet0/2.1
hostname(config-subif)# vlan 101
hostname(config-subif)# nameif dmz1
hostname(config-subif)# security-level 50
hostname(config-subif)# ip address 10.1.2.1 255.255.255.0
hostname(config-subif)# no shutdown
```

The following example shuts down the subinterface:

```
hostname(config)# interface gigabitethernet0/2.1
hostname(config-subif)# vlan 101
hostname(config-subif)# nameif dmz1
hostname(config-subif)# security-level 50
hostname(config-subif)# ip address 10.1.2.1 255.255.255.0
hostname(config-subif)# shutdown
```

Related Commands

Command	Description
clear xlate	Resets all translations for existing connections, causing the connections to be reset.
interface	Configures an interface and enters interface configuration mode.

shutdown (ca-server mode)

To disable the local Certificate Authority (CA) server and render the enrollment interface inaccessible to users, use the **shutdown** command in CA server configuration mode. To enable the CA server, lock down the configuration from changes, and to render the enrollment interface accessible, use the **no** form of this command.

[**no**] **shutdown**

Syntax Description

This command has no arguments or keywords.

Defaults

Initially, by default, the CA server is shut down.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ca server configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

This command in CA server mode is similar to the **shutdown** command in interface mode. At setup time, the local CA server is shutdown by default and must be enabled using the **no shutdown** command. When you use the **no shutdown** command for the first time, you enable the CA server and generate the CA server certificate and keypair.

Note The CA configuration cannot be changed once you lock it and generate the CA certificate by issuing the **no shutdown** command.

To enable the CA server and lock down the current configuration with the **no shutdown** command, a 7-character password is required to encode and archive a PKCS12 file containing the CA certificate and keypair that is to be generated. The file is stored to the storage identified by a previously specified **database path** command.

Examples

The following example disables the local CA server and renders the enrollment interface inaccessible:

```
hostname(config)# crypto ca server
hostname(config-ca-server)# shutdown
hostname(config-ca-server)#
```

The following example enables the local CA server and makes the enrollment interface accessible:

```
hostname(config)# crypto ca server
hostname(config-ca-server)# no shutdown
hostname(config-ca-server)#

hostname(config-ca-server)# no shutdown

% Some server settings cannot be changed after CA certificate generation.
% Please enter a passphrase to protect the private key
% or type Return to exit

Password: caserver

Re-enter password: caserver

Keypair generation process begin. Please wait...

hostname(config-ca-server)#
```

Related Commands

Command	Description
crypto ca server	Provides access to the CA Server Configuration mode CLI command set, which allows you to configure and manage the local CA.
show crypto ca server	Displays the status of the CA configuration.

sla monitor

To create an SLA operation, use the **sla monitor** command in global configuration mode. To remove the SLA operation, use the **no** form of this command.

sla monitor *sla_id*

no sla monitor *sla_id*

Syntax Description

sla_id	Specifies the ID of the SLA being configured. If the SLA does not already exist, it is created. Valid values are from 1 to 2147483647.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

The **sla monitor** command creates SLA operations and enters SLA Monitor configuration mode. Once you enter this command, the command prompt changes to `hostname(config-sla-monitor)#` to indicate that you are in SLA Monitor configuration mode. If the SLA operation already exists, and a type has already been defined for it, then the prompt appears as `hostname(config-sla-monitor-echo)#`. You can create a maximum of 2000 SLA operations. Only 32 SLA operations may be debugged at any time.

The **no sla monitor** command removes the specified SLA operation and the commands used to configure that operation.

After you configure an SLA operation, you must schedule the operation with the **sla monitor schedule** command. You cannot modify the configuration of the SLA operation after scheduling it. To modify the the configuration of a scheduled SLA operation, you must use the **no sla monitor** command to remove the selected SLA operation completely. Removing an SLA operation also removes the associated **sla monitor schedule** command. Then you can reenter the SLA operation configuration.

To display the current configuration settings of the operation, use the **show sla monitor configuration** command. To display operational statistics of the SLA operation, use the **show sla monitor operation-state command**. To see the SLA commands in the configuration, use the **show running-config sla monitor** command.

Examples

The following example configures an SLA operation with an ID of 123 and creates a tracking entry with the ID of 1 to track the reachability of the SLA:

```
hostname(config)# sla monitor 123
hostname(config-sla-monitor)# type echo protocol ipIcmpEcho 10.1.1.1 interface outside
hostname(config-sla-monitor-echo)# timeout 1000
hostname(config-sla-monitor-echo)# frequency 3
hostname(config)# sla monitor schedule 123 life forever start-time now
hostname(config)# track 1 rtr 123 reachability
```

Related Commands

Command	Description
frequency	Specifies the rate at which the SLA operation repeats.
show sla monitor configuration	Displays the SLA configuration settings.
sla monitor schedule	Schedules the SLA operation.
timeout	Sets the amount of time the SLA operation waits for a response.
track rtr	Creates a tracking entry to poll the SLA.

sla monitor schedule

To schedule an SLA operation, use the **sla monitor schedule** command in global configuration mode. To remove SLA operation schedule, and place the operation in the pending state, use the **no** form of this command.

sla monitor schedule *sla-id* [**life** {**forever** | *seconds*}] [**start-time** {*hh*:*mm*[:*ss*] [*month day* | *day month*] | **pending** | **now** | **after** *hh*:*mm*:*ss*}] [**ageout** *seconds*] [**recurring**]

no sla monitor schedule *sla-id*

Syntax Description

after *hh*:*mm*:*ss*	Indicates that the operation should start the specified number of hours, minutes, and seconds after the command was entered.
ageout *seconds*	(Optional) Specifies the number of seconds to keep the operation in memory when it is not actively collecting information. After an SLA operation ages out, it is removed from the running configuration.
day	Number of the day to start the operation on. Valid values are from 1 to 31. If a day is not specified, then the current day is used. If you specify a day you must also specify a month.
hh:*mm*[:*ss*]	Specifies an absolute start time in 24-hour notation. Seconds are optional. The next time the specified time occurs is implied unless you specify a *month* and a *day*.
life forever	(Optional) Schedules the operation to run indefinitely.
life *seconds*	(Optional) Sets the number of seconds the operation actively collects information.
month	(Optional) Name of the month to start the operation in. If a month is not specified, then the current month is used. I f you specify a month you must also specify a day. You can enter the full English name of the month or just the first three letters.
now	Indicates that the operation should start as soon as the command is entered.
pending	Indicates that no information is collected. This is the default state.
recurring	(Optional) Indicates that the operation will start automatically at the specified time and for the specified duration every day.
sla-id	The ID of the SLA operation being scheduled.
start-time	Sets the time when the SLA operation starts.

Defaults

The defaults are as follows:

- SLA operations are in the **pending** state until the scheduled time is met. This means that the operation is enabled but not actively collecting data.
- The default **ageout** time is 0 seconds (never ages out).
- The default **life** is 3600 seconds (one hour).

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

When an SLA operation is in an active state, it immediately begins collecting information. The following time line shows the age-out process of the operation:

```
W---------------------X---------------------Y---------------------Z
```

- W is the time the SLA operation was configured with the **sla monitor** command.
- X is the start time of the SLA operation. This is when the operation became “active”.
- Y is the end of life as configured with the **sla monitor schedule** command (the **life** seconds have counted down to zero).
- Z is the age out of the operation.

The age out process, if used, starts counting down at W, is suspended between X and Y, and is reset to its configured size are starts counting down again at Y. When an SLA operation ages out, the SLA operation configuration is removed from the running configuration. It is possible for the operation to age out before it executes (that is, Z can occur before X). To ensure that this does not happen, the difference between the operation configuration time and start time (X and W) must be less than the age-out seconds.

The **recurring** keyword is only supported for scheduling single SLA operations. You cannot schedule multiple SLA operations using a single **sla monitor schedule** command. The **life** value for a recurring SLA operation should be less than one day. The **ageout** value for a recurring operation must be “never” (which is specified with the value 0), or the sum of the **life** and **ageout** values must be more than one day. If the recurring option is not specified, the operations are started in the existing normal scheduling mode.

You cannot modify the configuration of the SLA operation after scheduling it. To modify the configuration of a scheduled SLA operation, you must use the **no sla monitor** command to remove the selected SLA operation completely. Removing an SLA operation also removes the associated **sla monitor schedule** command. Then you can reenter the SLA operation configuration.

Examples

The following example shows SLA operation 25 scheduled to begin actively collecting data at 3:00 p.m. on April 5. This operation will age out after 12 hours of inactivity. When this SLA operation ages out, all configuration information for the SLA operation is removed from the running configuration.

```
hostname(config)# sla monitor schedule 25 life 43200 start-time 15:00 apr 5 ageout 43200
```

The following example shows SLA operation 1 schedule to begin collecting data after a 5-minute delay. The default life of one hour applies.

```
hostname(config)# sla monitor schedule 1 start after 00:05:00
```

The following example shows SLA operation 3 scheduled to begin collecting data immediately and is scheduled to run indefinitely:

```
hostname(config)# sla monitor schedule 3 life forever start-time now
```

The following example shows SLA operation 15 scheduled to begin automatically collecting data every day at 1:30 a.m.:

```
hostname(config)# sla monitor schedule 15 start-time 01:30:00 recurring
```

Related Commands

Command	Description
show sla monitor configuration	Displays the SLA configuration settings.
sla monitor	Defines an SLA monitoring operation.

smart-tunnel auto-signon enable

To enable smart tunnel auto sign-on in clientless (browser-based) SSL VPN sessions, use the **smart-tunnel auto-signon enable** command in group-policy webvpn configuration mode or username webvpn configuration mode.

To remove the **smart-tunnel auto-signon enable** command from the group policy or username and inherit it from the default group-policy, use the **no** form of this command.

no smart-tunnel auto-signon enable *list* [**domain** *domain*] [port *port*] [realm *realm string*]

Syntax Description

domain *domain*	(Optional). Name of the domain to be added to the username during authentication. If you enter a domain, enter the **use-domain** keyword in the list entries.
list	The name of a smart tunnel auto sign-on list already present in the ASA webvpn configuration. To view the smart tunnel auto sign-on list entries in the SSL VPN configuration, enter the **show running-config webvpn smart-tunnel** command in privileged EXEC mode.
port	Specifies which port performs auto sign-on.
realm	Configures a realm for the authentication.

Defaults

No defaults exist for this command.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Group-policy webvpn configuration	•	—	•	—	—
Username webvpn configuration	•	—	•	—	—

Command History

Release	Modification
8.0(4)	This command was introduced.
8.4(1)	Optional *realm* and *port* arguments were introduced.

Usage Guidelines

The smart-tunnel auto sign-on feature supports only applications communicating HTTP and HTTPS using the Microsoft WININET library. For example, Microsoft Internet Explorer uses the WININET dynamic linked library to communicate with web servers.

You must use the **smart-tunnel auto-signon** *list* command to create a list of servers first. You can assign only one list to a group policy or username.

A realm string is associated with the protected area of the website and is passed back to the browser either in the authentication prompt or in the HTTP headers during authentication. If adminstrators do not know the corresponding realm, they should perform logon once and get the string from the prompt dialog.

Administrators can now optionally specify a port number for the corresponding hosts. For Firefox, if no port number is specified, auto sign-on is performed on HTTP and HTTPS, accessed by the default port numbers 80 and 443 respectively.

Examples

The following commands enable the smart tunnel auto sign-on list named HR:

```
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# smart-tunnel auto-signon enable HR
hostname(config-group-webvpn)
```

The following command enables the smart tunnel auto sign-on list named HR and adds the domain named CISCO to the username during authentication:

```
hostname(config-group-webvpn)# smart-tunnel auto-signon enable HR domain CISCO
```

The following command removes the smart tunnel auto sign-on list named HR from the group policy and inherits the smart tunnel auto sign-on list command from the default group policy:

```
hostname(config-group-webvpn)# no smart-tunnel auto-signon enable HR
```

Related Commands

Command	Description
smart-tunnel auto-signon *list*	Creates a list of servers for which to automate the submission of credentials in smart tunnel connections.
show running-config webvpn smart-tunnel	Displays the smart tunnel configuration on the ASA.
smart-tunnel auto-start	Starts smart tunnel access automatically upon user login.
smart-tunnel disable	Prevents smart tunnel access.
smart-tunnel *list*	Adds an entry to a list of applications that can use a Clientless SSL VPN session to connect to private sites.

smart-tunnel auto-signon list

To create a list of servers for which to automate the submission of credentials in smart tunnel connections, use the **smart-tunnel auto-signon list** command in webvpn configuration mode.Use this command for each server you want to add to a list.

To remove an entry from a list, use the **no** form of this command, specifying both the list and the IP address or hostname, as it appears in the ASA configuration.

no smart-tunnel auto-signon *list* [**use-domain**] {**ip** *ip-address* [*netmask*] | **host** *hostname-mask*}

To display the smart tunnel auto sign-on list entries, enter the **show running-config webvpn smart-tunnel** command in privileged EXEC mode.

To remove an entire list of servers from the ASA configuration, use the **no** form of the command, specifying only the list.

no smart-tunnel auto-signon *list*

Syntax Description

host	Server to be identified by its host name or wildcard mask.
hostname-mask	Host name or wildcard mask to auto-authenticate to.
ip	Server to be identified by its IP address and netmask.
ip-address [*netmask*]	Sub-network of hosts to auto-authenticate to.
list	Name of a list of remote servers. Use quotation marks around the name if it includes a space. The string can be up to 64 characters. The ASA creates the list if it is not present in the configuration. Otherwise, it adds the entry to the list.
use-domain	(Optional) Add the Windows domain to the username if authentication requires it. If you enter this keyword, be sure to specify the domain name when assigning the smart tunnel list to one or more group policies, or usernames.

Defaults

No defaults exist for this command.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
webvpn configuration mode	•	—	•	—	—

Command History

Release	Modification
8.0(4)	This command was introduced.

Usage Guidelines

The smart-tunnel auto sign-on feature supports only applications communicating HTTP and HTTPS using the Microsoft WININET library. For example, Microsoft Internet Explorer uses the WININET dynamic linked library to communicate with web servers.

Following the population of a smart tunnel auto sign-on list, use the **smart-tunnel auto-signon enable** *list* command in group policy webvpn or username webvpn mode to assign the list.

Examples

The following command adds all hosts in the subnet and adds the Windows domain to the username if authentication requires it:

```
asa2(config-webvpn)# smart-tunnel auto-signon HR use-domain ip 192.32.22.56 255.255.255.0
```

The following command removes that entry from the list:

```
asa2(config-webvpn)# no smart-tunnel auto-signon HR use-domain ip 192.32.22.56
255.255.255.0
```

The command shown above also removes the list named HR if the entry removed is the only entry in the list. Otherwise, the following command removes the entire list from the ASA configuration:

```
asa2(config-webvpn)# no smart-tunnel auto-signon HR
```

The following command adds all hosts in the domain to the smart tunnel auto sign-on list named intranet:

```
asa2(config-webvpn)# smart-tunnel auto-signon intranet host *.exampledomain.com
```

The following command removes that entry from the list:

```
asa2(config-webvpn)# no smart-tunnel auto-signon intranet host *.exampledomain.com
```

Related Commands

Command	Description
smart-tunnel auto-signon enable	Enables smart tunnel auto sign-on for the group policy or username specified in the command mode.
smart-tunnel auto-signon enable *list*	Assigns a smart tunnel auto sign-on list to a group policy or username
show running-config webvpn smart-tunnel	Displays the smart tunnel configuration.
smart-tunnel auto-start	Starts smart tunnel access automatically upon user login.
smart-tunnel enable	Enables smart tunnel access upon user login, but requires the user to start smart tunnel access manually, using the **Application Access > Start Smart Tunnels** button on the Clientless SSL VPN portal page.

smart-tunnel auto-start

To start smart tunnel access automatically upon user login in a clientless (browser-based) SSL VPN session, use the **smart-tunnel auto-start** command in group-policy webvpn configuration mode or username webvpn configuration mode.

smart-tunnel auto-start *list*

To remove the **smart-tunnel** command from the group policy or username and inherit the [**no**] **smart-tunnel** command from the default group-policy, use the **no** form of the command.

no smart-tunnel

Syntax Description

list	*list* is the name of a smart tunnel list already present in the ASA webvpn configuration. To view any smart tunnel list entries already present in the SSL VPN configuration, enter the **show running-config webvpn** command in privileged EXEC mode.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy webvpn configuration mode	•	—	•	—	—
Username webvpn configuration mode	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

This command requires that you use the **smart-tunnel list** command to create the list of applications first.

This option to start smart tunnel access upon user login applies only to Windows.

Examples

The following commands start smart tunnel access for a list of applications named apps1:

```
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# smart-tunnel auto-start apps1
hostname(config-group-webvpn)
```

The following commands remove the list named apps1 from the group policy and inherit the smart tunnel commands from the default group policy:

```
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# no smart-tunnel
hostname(config-group-webvpn)
```

Related Commands

Command	Description
show running-config webvpn	Displays the Clientless SSL VPN configuration, including all smart tunnel list entries.
smart-tunnel disable	Prevents smart tunnel access.
smart-tunnel enable	Enables smart tunnel access upon user login, but requires the user to start smart tunnel access manually, using the **Application Access > Start Smart Tunnels** button on the Clientless SSL VPN portal page.
smart-tunnel list	Adds an entry to a list of applications that can use a Clientless SSL VPN session to connect to private sites.

smart-tunnel disable

To prevent smart tunnel access through clientless (browser-based) SSL VPN sessions, use the **smart-tunnel disable** command in group-policy webvpn configuration mode or username webvpn configuration mode.

smart-tunnel disable

To remove a **smart-tunnel** command from the group policy or username and inherit the [**no**] **smart-tunnel** command from the default group-policy, use the **no** form of the command.

no smart-tunnel

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy webvpn configuration mode	•	—	•	—	—
Username webvpn configuration mode	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

By default, smart tunnels are not enabled, so the **smart-tunnel disable** command is necessary only if the (default) group policy or username configuration contains a **smart-tunnel auto-start** or **smart-tunnel enable** command that you do not want applied for the group policy or username in question.

Examples

The following commands prevent smart tunnel access:

```
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# smart-tunnel disable
hostname(config-group-webvpn)
```

Related Commands

Command	Description
smart-tunnel auto-start	Starts smart tunnel access automatically upon user login.
smart-tunnel enable	Enables smart tunnel access upon user login, but requires the user to start smart tunnel access manually, using the **Application Access** > **Start Smart Tunnels** button on the Clientless SSL VPN portal page.
smart-tunnel list	Adds an entry to a list of applications that can use a Clientless SSL VPN session to connect to private sites.

smart-tunnel enable

To enable smart tunnel access through clientless (browser-based) SSL VPN sessions, use the **smart-tunnel enable** command in group-policy webvpn configuration mode or username webvpn configuration mode.

smart-tunnel enable *list*

To remove the **smart-tunnel** command from the group policy or username and inherit the [**no**] **smart-tunnel** command from the default group-policy, use the **no** form of the command.

no smart-tunnel

Syntax Description

list	*list* is the name of a smart tunnel list already present in the ASA webvpn configuration. To view the smart tunnel list entries in the SSL VPN configuration, enter the **show running-config webvpn** command in privileged EXEC mode.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy webvpn configuration mode	•	—	•	—	—
Username webvpn configuration mode	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

The **smart-tunnel enable** command assigns a list of applications eligible for smart tunnel access to a group policy or username. It requires the user to start smart tunnel access manually, using the **Application Access > Start Smart Tunnels** button on the clientless-SSL-VPN portal page. Alternatively, you can use the **smart-tunnel auto-start** command to start smart tunnel access automatically upon user login.

Both commands require that you use the **smart-tunnel list** command to create the list of applications first.

Examples

The following commands enable the smart tunnel list named apps1:

```
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# smart-tunnel enable apps1
hostname(config-group-webvpn)
```

The following commands remove the list named apps1 from the group policy and inherit the smart tunnel list from the default group policy:

```
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# no smart-tunnel
hostname(config-group-webvpn)
```

Related Commands

Command	Description
show running-config webvpn	Displays the Clientless SSL VPN configuration, including all smart tunnel list entries.
smart-tunnel auto-start	Starts smart tunnel access automatically upon user login.
smart-tunnel disable	Prevents smart tunnel access.
smart-tunnel list	Adds an entry to a list of applications that can use a Clientless SSL VPN session to connect to private sites.

smart-tunnel list

To populate a list of applications that can use a clientless (browser-based) SSL VPN session to connect to private sites, use the **smart-tunnel list** command in webvpn configuration mode. To remove an application from a list, use the **no** form of the command, specifying the entry. To remove an entire list of applications from the ASA configuration, use the **no** form of the command, specifying only the list.

[**no**] **smart-tunnel list** *list application path* [**platform** *OS*] [*hash*]

no smart-tunnel list *list*

Syntax Description

application	Name of the application to be granted smart tunnel access. The string can be up to 64 characters.
hash	(Optional and applicable only for Windows) To obtain this value, enter the checksum of the application (that is, the checksum of the executable file) into a utility that calculates a hash using the SHA-1 algorithm. One example of such a utility is the Microsoft File Checksum Integrity Verifier (FCIV), which is available at http://support.microsoft.com/kb/841290/. After installing FCIV, place a temporary copy of the application to be hashed on a path that contains no spaces (for example, c:/fciv.exe), then enter **fciv.exe -sha1** *application* at the command line (for example, **fciv.exe -sha1 c:\msimn.exe**) to display the SHA-1 hash. The SHA-1 hash is always 40 hexadecimal characters.
list	Name of a list of applications or programs. Use quotation marks around the name if it includes a space. The CLI creates the list if it is not present in the configuration. Otherwise, it adds the entry to the list.
path	For Mac OS, the full path to the application. For Windows, the filename of the application; or a full or partial path to the application, including its filename. The string can be up to 128 characters.
platform *OS*	(Optional if the OS is Microsoft Windows) Enter **windows or mac** to specify the host of the application.

Defaults

Windows is the default platform.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration mode	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.
8.0(4)	Added **platform** *OS*.

Usage Guidelines

You can configure more than one smart tunnel list on an ASA, but you cannot assign more than one smart tunnel list to a given group policy or username. To populate a smart tunnel list, enter the **smart-tunnel list** command once for each application, entering the same *list* string, but specifying an *application* and *path* that is unique for the OS. Enter the command once for each *OS* you want the list to support.

The session ignores a list entry if the OS does not match the one indicated in the entry. It also ignores an entry if the path to the application is not present.

To view the smart tunnel list entries in the SSL VPN configuration, enter the **show running-config webvpn smart-tunnel** command in privileged EXEC mode.

The *path* must match the one on the computer, but it does not have to be complete. For example, the *path* can consist of nothing more than the executable file and its extension.

Smart tunnels have the following requirements:

- The remote host originating the smart tunnel connection must be running a 32-bit version of Microsoft Windows Vista, Windows XP, or Windows 2000; or Mac OS 10.4 or 10.5.
- Users of Microsoft Windows Vista who use smart tunnels or port forwarding must add the URL of the ASA to the Trusted Site zone. To access the Trusted Site zone, they must start Internet Explorer and choose the Tools > Internet Options > Security tab. Vista users can also disable Protected Mode to facilitate smart tunnel access; however, we recommend against this method because it increases the computer's vulnerability to attack.
- The browser must be enabled with Java, Microsoft ActiveX, or both.
- Smart tunnel support for Mac OS requires Safari 3.1.1 or later.

On Microsoft Windows, only Winsock 2, TCP-based applications are eligible for smart tunnel access.

On Mac OS, applications using TCP that are dynamically linked to the SSL library can work over a smart tunnel. The following types of applications do not work over a smart tunnel:

- Applications using dlopen or dlsym to locate libsocket calls
- Statically linked applications to locate libsocket calls
- Mac OS applications that use two-level name spaces.
- Mac OS, console-based applications, such as Telnet, SSH, and cURL.
- Mac OS, PowerPC-type applications. To determine the type of a Mac OS application, right-click its icon and select Get Info.

On Mac OS, only applications started from the portal page can establish smart tunnel sessions. This requirement includes smart tunnel support for Firefox. Using Firefox to start another instance of Firefox during the first use of a smart tunnel requires the user profile named csco_st. If this user profile is not present, the session prompts the user to create one.

The following limitations apply to smart tunnels:

- If the remote computer requires a proxy server to reach the ASA, the URL of the terminating end of the connection must be in the list of URLs excluded from proxy services. In this configuration, smart tunnels support only basic authentication.
- The smart tunnel auto sign-on feature supports only applications communicating HTTP and HTTPS using the Microsoft WININET library on a Microsoft Windows OS. For example, Microsoft Internet Explorer uses the WININET dynamic linked library to communicate with web servers.
- A group policy or local user policy supports no more than one list of applications eligible for smart tunnel access and one list of smart tunnel auto sign-on servers.
- A stateful failover does not retain smart tunnel connections. Users must reconnect following a failover.

Note A sudden problem with smart tunnel access may be an indication that a *path* value is not up-to-date with an application upgrade. For example, the default path to an application typically changes following the acquisition of the company that produces the application and the next upgrade.

Entering a hash provides a reasonable assurance that clientless SSL VPN does not qualify an illegitimate file that matches the string you specified in the *path*. Because the checksum varies with each version or patch of an application, the *hash* you enter can only match one version or patch on the remote host. To specify a *hash* for more than one version of an application, enter the **smart-tunnel list** command once for each version, entering the same *list* string, but specifying the unique *application* string and unique *hash* value in each command.

Note You must maintain the smart tunnel list in the future if you enter *hash* values and you want to support future versions or patches of an application with smart tunnel access. A sudden problem with smart tunnel access may be an indication that the application list containing *hash* values is not up-to-date with an application upgrade. You can avoid this problem by not entering a *hash*.

Following the configuration of a smart tunnel list, use the **smart-tunnel auto-start** or **smart-tunnel enable** command to assign the list to group policies or usernames.

Examples

The following command adds the Microsoft Windows application Connect to a smart tunnel list named apps1:

```
hostname(config-webvpn)# smart-tunnel list apps1 LotusSametime connect.exe
```

The following command adds the Windows application msimn.exe and requires that the hash of the application on the remote host match the last string entered to qualify for smart tunnel access:

```
hostname(config-webvpn)# smart-tunnel list apps1 OutlookExpress msimn.exe
4739647b255d3ea865554e27c3f96b9476e75061
```

The following command provides smart tunnel support for the Mac OS browser Safari:

```
hostname(config-webvpn)# smart-tunnel list apps1 Safari /Applications/Safari platform mac
```

Related Commands

Command	Description
show running-config webvpn smart-tunnel	Displays the smart tunnel configuration on the ASA.
smart-tunnel auto-start	Starts smart tunnel access automatically upon user login.
smart-tunnel disable	Prevents smart tunnel access.
smart-tunnel enable	Enables smart tunnel access upon user login, but requires the user to start smart tunnel access manually, using the **Application Access > Start Smart Tunnels** button on the Clientless SSL VPN portal page.

smart-tunnel network

To create a list of hosts to use for configuring smart tunnel tunnel policies, use the **smart-tunnel network** command in webvpn configuration mode. To disallow a list of hosts for smart tunnel tunnel policies, use the [no] form of this command.

smart-tunnel network

no smart-tunnel network

Syntax Description

host *host mask*	The hostname mask, such as *.cisco.com.
ip *ip address*	The IP address of a network.
netmask	The Netmask of a network.
network name	The name of the network to apply to tunnel policy.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Webvpn configuration	•	•	•		

Command History

Release	Modification
8.3(1)	This command was introduced.

Usage Guidelines

When the smart tunnel is turned on, you can allow traffic outside of the tunnel with the **smart-tunnel network** command, which configures the network (a set of hosts), and the **smart-tunnel tunnel-policy** command, which uses the specified smart-tunnel network to enforce a policy on a user.

Examples

The following is a sample of how the **smart-tunnel network** command is used:

```
hostname(config-webvpn)# smart-tunnel network testnet ip 192.168.0.0 255.255.255
```

Related Commands

Command	Description
smart-tunnel tunnel-policy	Uses the specified smart-tunnel network to enforce a policy on a user.

smart-tunnel tunnel-policy

To apply smart tunnel tunnel policies to a particular group or user policy, use the **smart-tunnel tunnel-policy** command in configuration webvpn mode. To unapply smart tunnel tunnel policies to a particular group, use the [no] form of this command.

smart-tunnel tunnel-policy

no smart-tunnel tunnel-policy

Syntax Description

excludespecified	Tunnels only networks that are outside of the networks specified by network name.
network name	Lists networks to be tunneled.
tunnelall	Makes everything tunneled (encrypted).
tunnelspecified	Tunnels only networks specified by network name.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Webvpn configuration	•	•	•		

Command History

Release	Modification
8.3.1	This command was introduced.

Usage Guidelines

When the smart tunnel is turned on, you can allow traffic outside of the tunnel with the **smart-tunnel network** command, which configures the network (a set of hosts), and the **smart-tunnel tunnel-policy** command, which uses the specified smart-tunnel network to enforce a policy on a user.

Examples

The following is a sample of how the **smart-tunnel tunnel-policy**command is used:

```
hostname(config-username-webvpn)# smart-tunnel tunnel-policy tunnelspecified testnet
```

Related Commands

Command	Description
smart-tunnel network	Creates a list of hosts for configuring smart tunnel policies.

smtp from-address

To specify the e-mail address to use in the E-mail From: field for all e-mails generated by the local CA server (such as distribution of one-time passwords) use the **smtp from-address** command in CA server configuration mode. To reset the e-mail address to the default, use the **no** form of this command.

smtp from-address *e-mail_address*

no smtp from-address

Syntax Description

e-mail_address	Specifies the e-mail address appearing in the From: field of all e-mails generated by the CA server.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ca server configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Examples

The following example specifies that the From: field of all e-mails from the local CA server include ca-admin@asa1-ca.example.com:

```
hostname(config)# crypto ca server
hostname(config-ca-server)# smtp from-address ca-admin@asa1-ca.example.com
hostname(config-ca-server)#
```

The following example resets the From: field of all e-mails from the local CA server to the default address admin@asa1-ca.example.com:

```
hostname(config)# crypto ca server
hostname(config-ca-server)# smtp from-address admin@asa1-ca.example.com
hostname(config-ca-server)#
```

Related Commands

Command	Description
crypto ca server	Provides access to CA Server Configuration mode CLI command set, which allows you to configure and manage a local CA.
smtp subject	Customizes the text to appear in the subject field of all e-mails generated by the local CA server.

smtp subject

To customize the text that appears in the subject field of all e-mails generated by the local Certificate Authority (CA) server (such as distribution of one-time passwords), use the **smtp subject** command in CA server configuration mode. To reset the text to the default, use the **no** form of this command.

smtp subject *subject-line*

no smtp subject

Syntax Description

subject-line	Specifies the text appearing in the Subj: field of all e-mails sent from the CA server. The maximum number of characters is 127.

Defaults

By default, the text in the Subj: field is "Certificate Enrollment Invitation".

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Ca server configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Examples

The following example specifies that the text *Action: Enroll for a certificate* appear in the Subj: field of all e-mails from the CA server:

```
hostname(config)# crypto ca server
hostname(config-ca-server)# smtp subject Action: Enroll for a certificate
hostname(config-ca-server)#
```

The following example resets the Subj: field text for all e-mails from the CA server to the default text "Certificate Enrollment Invitation":

```
hostname(config)# crypto ca server
hostname(config-ca-server)# no smtp subject
hostname(config-ca-server)#
```

Related Commands

Command	Description
crypto ca server	Provides access to CA Server Configuration mode CLI command set, which allows you to configure and manage a local CA.
smtp from-address	Specifies the e-mail address to use in the E-mail From: field for all e-mails generated by the local CA server.

smtps

To enter SMTPS configuration mode, use the **smtps** command in global configuration mode. To remove any commands entered in SMTPS command mode, use the **no** version of this command. SMTPS is a TCP/IP protocol that lets you to send e-mail over an SSL connection.

smtps

no smtps

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to enter SMTPS configuration mode:

```
hostname(config)# smtps
hostname(config-smtps)#
```

Related Commands

Command	Description
clear configure smtps	Removes the SMTPS configuration.
show running-config smtps	Displays the running configuration for SMTPS.

smtp-server

To configure an SMTP server, use the **smtp-server** command in global configuration mode. To remove the attribute from the configuration, use the **no** form of this command.

smtp-server {*primary_server*} [*backup_server*]

no smtp-server

Syntax Description

backup_server	Identifies a backup SMTP server to relay event messages if the primary SMTP server is unavailable. Use either an IP address or DNS name.
primary_server	Identifies the primary SMTP server. Use either an IP address or DNS name

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	—	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The ASA includes an internal SMTP client that the Events system can use to notify external entities that a certain event has occurred. You can configure SMTP servers to receive these event notices, and then forward them to specified e-mail addresses. The SMTP facility is active only when you enable E-mail events to the ASA.

Examples

The following example shows how to set an SMTP server with an IP address of 10.1.1.24, and a backup SMTP server with an IP address of 10.1.1.34:

```
hostname(config)# smtp-server 10.1.1.24 10.1.1.34
```

snmp cpu threshold rising

To configure the threshold value for a high CPU threshold and the threshold monitoring period, use the **snmp cpu threshold rising** command in global configuration mode. To not configure the threshold value and threshold monitoring period, use the **no** form of this command.

snmp cpu threshold rising *threshold_value monitoring_period*

no snmp cpu threshold rising *threshold_value monitoring_period*

Syntax Description

monitoring_period	Defines the monitoring period in minutes.
threshold_value	Defines the threshold level as a percentage of CPU usage.

Defaults

If the **snmp cpu threshold rising** command is not configured, the default for the high threshold level is set at over 70 percent of CPU usage, and the default for the critical threshold level isset at over 95 percent of CPU usage. The default monitoring period is set to one minute.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.4(1)	This command was introduced. Does not apply to the ASA Services Module.

Usage Guidelines

You cannot configure the critical CPU threshold level, which is maintained at a constant 95 percent. Valid threshold values range from 10 to 94 percent of CPU usage. Valid values for the monitoring period range from 1 to 60 minutes.

Examples

The following example shows how to configure the SNMP CPU threshold level to 75 percent of CPU usage and a monitoring period of 30 minutes:

```
hostname(config)# snmp cpu threshold 75% 30
```

Related Commands

Command	Description
snmp-server enable traps	Enables SNMP-related traps.
snmp link threshold	Defines the SNMP interface threshold value.
snmp-server enable	Enables SNMP on the ASA.
snmp-server host	Sets the SNMP host address.
snmp-server location	Sets the SNMP server location string.

snmp link threshold

To configure the threshold value for an SNMP physical interface and the threshold value for system memory usage, use the **snmp link threshold** command in global configuration mode. To clear the threshold value for an SNMP physical interface and the threshold value for system memory usage, use the **no** form of this command.

snmp link threshold *threshold_value*

no snmp link threshold *threshold_value*

Syntax Description

threshold_value	Defines the threshold value as a percentage of CPU usage.

Defaults

If you do not configure the **snmp link threshold** command, the default threshold value is 70 percent of CPU usage and system memory usage.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.4(1)	This command was introduced.

Usage Guidelines

Valid threshold values range from 30 to 99 percent of physical interfaces. The **snmp link threshold** command is available only in the admin context.

Examples

The following example shows how to configure the SNMP interface threshold value to 75 percent for all physical interfaces:

```
hostname(config)# snmp link threshold 75%
```

Related Commands

Command	Description
snmp-server enable traps	Enables SNMP-related traps.
snmp cpu threshold rising	Defines the SNMP CPU threshold value.
snmp-server enable	Enables SNMP on the ASA.

Command	Description
snmp-server host	Sets the SNMP host address.
snmp-server location	Sets the SNMP server location string.

snmp-map

To identify a specific map for defining the parameters for SNMP inspection, use the **snmp-map** command in global configuration mode. To remove the map, use the **no** form of this command.

snmp-map *map_name*

no snmp-map *map_name*

Syntax Description

map_name	The name of the SNMP map.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Use the **snmp-map** command to identify a specific map to use for defining the parameters for SNMP inspection. When you enter this command, the system enters the SNMP map configuration mode, which lets you enter the different commands used for defining the specific map. After defining the SNMP map, you use the **inspect snmp** command to enable the map. Then you use the **class-map**, **policy-map**, and **service-policy** commands to define a class of traffic, to apply the **inspect** command to the class, and to apply the policy to one or more interfaces.

Examples

The following example shows how to identify SNMP traffic, define a SNMP map, define a policy, and apply the policy to the outside interface.

```
hostname(config)# access-list snmp-acl permit tcp any any eq 161
hostname(config)# access-list snmp-acl permit tcp any any eq 162
hostname(config)# class-map snmp-port
hostname(config-cmap)# match access-list snmp-acl
hostname(config-cmap)# exit
hostname(config)# snmp-map inbound_snmp
hostname(config-snmp-map)# deny version 1
hostname(config-snmp-map)# exit
hostname(config)# policy-map inbound_policy
hostname(config-pmap)# class snmp-port
hostname(config-pmap-c)# inspect snmp inbound_snmp
```

```
hostname(config-pmap-c)#
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
deny version	Disallows traffic using a specific version of SNMP.
inspect snmp	Enables SNMP application inspection.
policy-map	Associates a class map with specific security actions.

snmp-server community

To set the SNMP community string, use the **snmp-server community** command in global configuration mode. To remove the SNMP community string, use the **no** form of this command.

snmp-server community [*0* | *8*] *community-string*

no snmp-server community [*0* | *8*] *community-string*

Syntax Description

0	(Optional) Specifies that an unencrypted (clear text) community string will follow.
8	Specifies that an encrypted community string will follow.
community-string	Sets the SNMP community string, which is the password in encrypted or unencrypted (clear text) format. The community string can have a maximum of 32 characters.

Defaults

The default community string is "public."

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.2(1)	The *text* argument was changed to the *community-string* argument.
8.3(1)	Support for encrypted passwords was added.

Usage Guidelines

The SNMP community string is a shared secret among the SNMP management station and the network nodes being managed. It is used only for Version 1 and 2c communication between the management station and the device. The ASA uses a key to determine whether or not the incoming SNMP request is valid.

For example, you could designate a site with a community string and then configure the routers, the ASA, and the management station with this same string. The ASA uses this string and does not respond to requests with an invalid community string.

After you have used an encrypted community string, only the encrypted form is visible to all systems (for example, CLI, ASDM, CSM, and so on). The clear text password is not visible.

The encrypted community string is always generated by the ASA; you normally enter the clear text form.

Note If you downgrade from version 8.3(1) to a lower version of the ASA software and have configured encrypted passwords, you must first revert the encrypted passwords to clear text using the **no key config-key password encryption** command, then save the results.

Examples

The following example sets the community string to ”onceuponatime”:

```
hostname(config)# snmp-server community onceuponatime
```

The following example sets an encrypted community string:

```
hostname(config)# snmp-server community 8 LvAu+JdFG+GjPmZYlKvAhXpb28E=
```

The following example sets an unencrypted community string:

```
hostname(config)# snmp-server community 0 cisco
```

Related Commands

Command	Description
clear configure snmp-server	Clears the SNMP counters.
snmp-server contact	Sets the SNMP contact name.
snmp-server enable	Enables SNMP on the ASA.
snmp-server host	Sets the SNMP host address.
snmp-server location	Sets the SNMP server location string.

snmp-server contact

To set the SNMP server contact name, use the **snmp-server contact** command in global configuration mode. To remove the SNMP contact name, use the **no** form of this command.

snmp-server contact *text*

no snmp-server contact [*text*]

Syntax Description

text	Specifies the name of the contact person or the ASA system administrator. The name is case sensitive and can be up to 127 characters. Spaces are accepted, but multiple spaces are shortened to a single space.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example sets the SNMP server contact to EmployeeA:

```
hostname(config)# snmp-server contact EmployeeA
```

Related Commands

Command	Description
snmp-server community	Sets the SNMP community string.
snmp-server enable	Enables SNMP on the ASA.
snmp-server enable traps	Enables SNMP traps.
snmp-server host	Sets the SNMP host address.
snmp-server location	Sets the SNMP server location string.

snmp-server enable

To enable the SNMP server on the ASA, use the **snmp-server enable** command in global configuration mode. To disable the SNMP server, use the **no** form of this command.

snmp-server enable

no snmp-server enable

Syntax Description

This command has no arguments or keywords.

Defaults

The SNMP server is enabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You can enable and disable SNMP easily, without configuring and reconfiguring SNMP traps or other configuration.

Examples

The following example enables SNMP, configures the SNMP host and traps, and then sends traps as syslog messages.

```
hostname(config)# snmp-server enable
hostname(config)# snmp-server community onceuponatime
hostname(config)# snmp-server location Building 42, Sector 54
hostname(config)# snmp-server contact EmployeeB
hostname(config)# snmp-server host perimeter 10.1.2.42
hostname(config)# snmp-server enable traps all
hostname(config)# logging history 7
hostname(config)# logging enable
```

Related Commands

Command	Description
snmp-server community	Sets the SNMP community string.
snmp-server contact	Sets the SNMP contact name.

Command	Description
snmp-server enable traps	Enables SNMP traps.
snmp-server host	Sets the SNMP host address.
snmp-server location	Sets the SNMP server location string.

snmp-server enable traps

To enable the ASA to send traps to the NMS, use the **snmp-server enable traps** command in global configuration mode. To disable traps, use the **no** form of this command.

snmp-server enable traps [**all** | **syslog** | **snmp** [*trap*] [...] | **entity** [*trap*] [...] | **ipsec** [*trap*] [...] | **ikev2** [*trap*] [...] | **remote-access** [*trap*] | **connection-limit-reached** | **cpu threshold rising** | **link-threshold** | **memory-threshold** | **nat** [*trap*]

no snmp-server enable traps [**all** | **syslog** | **snmp** [*trap*] [...] | **entity** [*trap*] [...] | **ipsec** [*trap*] [...] | **remote-access** [*trap*] | **connection-limit-reached** | **cpu threshold rising** | **link-threshold** | **memory-threshold** | **nat** [*trap*]

Syntax Description

all	Enables all traps.
connection-limit-reached	Enables connection limit reached traps.
cpu threshold rising	Enables CPU threshold rising traps.
entity [*trap*]	Enables entity traps. Traps for **entity** include the following: • **config-change** • **fru-insert** • **fru-remove** • **cpu-temperature** • **fan-failure** • **power-supply** • **power-supply-failure** • **power-supply-temperature** • **chassis-temperature** • **power-supply-presence** • **chassis-fan-failure**
ipsec [*trap*]	Enables IPsec traps. Traps for **ipsec** include the following: • **start** • **stop**
ikev2 [*trap*]	Enables IKEv2 IPsec traps. Traps for **ikev2** include: • **start** • **stop**
link-threshold	Enables link threshold reached traps.
memory-threshold	Enables memory threshold reached traps.
nat [*trap*]	Enables NAT-related traps. Traps for **nat** include the following: • **packet-discard**
remote-access [*trap*]	Enables remote access traps. Traps for **remote-access** include the following: • **session-threshold-exceeded**

snmp [*trap*]	Enables SNMP traps. By default, all SNMP traps are enabled. Traps for **snmp** include the following: • **authentication** • **linkup** • **linkdown** • **coldstart** • **warmstart**
syslog	Enables syslog message traps.

Defaults

The default configuration has all **snmp** traps enabled (**snmp-server enable traps snmp authentication linkup linkdown coldstart warmstart**). If you enter this command and do not specify a trap type, then the default is **syslog**. (The default **snmp** traps continue to be enabled along with the **syslog** trap.) All other traps are disabled by default.

You can disable these traps using the **no** form of this command with the **snmp** keyword. The **clear configure snmp-server** command restores the default enabling of SNMP traps.

Command Modes

The following table shows the modes in which you can enter the command.

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.4(1)	The following traps have been added: **snmp warmstart**, **nat packet-discard**, **link-threshold**, **memory-threshold**, **entity power-supply**, **entity fan-failure**, **entity cpu-temperature**, **cpu threshold rising**, and **connection-limit-reached**. These traps do not apply to the ASASM.
8.6(1)	The following traps have been added to support the ASA 5512-X, 5515-X, 5525-X, 5545-X, and 5555-X: **entity power-supply-failure**, **entity chassis-fan-failure**, **entity power-supply-presence**, **entity chassis-temperature**, and **entity power-supply-temperature**.
9.0(1)	Support for multiple context mode was added for IKEv2 and IPsec.

Usage Guidelines

To enable individual traps or sets of traps, enter this command for each feature type. To enable all traps, enter the **all** keyword.

To send traps to the NMS, enter the **logging history** command, then enable logging using the **logging enable** command.

Traps generated in the admin context only include the following:

- **connection-limit-reached**

- **entity**
- **memory-threshold**

Traps generated through the admin context only for physically connected interfaces in the system context include the following:

- **interface-threshold**

All other traps are available in the admin and user contexts.

Note In multi-mode, the **fan-failure** trap, the **power-supply-failure** trap, and the **cpu-temperature** trap are generated only from the admin context, and not the user contexts (applies only to the ASA 5512-X, 5515-X, 5525-X, 5545-X, and 5555-X). These traps do not apply to the ASA 5505.

If the CPU usage is greater than the configured threshold value for the configured monitoring period, a **cpu threshold rising** trap is generated.

When the used system memory reaches 80 percent, the **memory-threshold** trap is generated.

Note SNMP does not monitor voltage sensors.

Examples

The following example enables SNMP, configures the SNMP host and traps, then sends traps as syslog messages:

```
hostname(config)# snmp-server enable
hostname(config)# snmp-server community onceuponatime
hostname(config)# snmp-server location Building 42, Sector 54
hostname(config)# snmp-server contact EmployeeB
hostname(config)# snmp-server host perimeter 10.1.2.42
hostname(config)# snmp-server enable traps all
hostname(config)# logging history 7
hostname(config)# logging enable
```

Related Commands

Command	Description
snmp-server community	Sets the SNMP community string.
snmp-server contact	Sets the SNMP contact name.
snmp-server enable	Enables SNMP on the ASA.
snmp-server host	Sets the SNMP host address.
snmp-server location	Sets the SNMP server location string.

snmp-server group

To configure a new SNMP group, use the **snmp-server group** command in global configuration mode. To remove a specified SNMP group, use the **no** form of this command.

snmp-server group *group-name* {**v3** {**auth** | **noauth** | **priv**}}

no snmp-server group *group-name* {**v3** {**auth** | **noauth** | **priv**}}

Syntax Description

auth	Specifies packet authentication without encryption.
group-name	Specifies the name of the group.
noauth	Specifies no packet authentication.
priv	Specifies packet authentication with encryption.
v3	Specifies that the group is using the SNMP Version 3 security model, which is the most secure of the supported security models. This version allows you to explicitly configure authentication characteristics.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.2(1)	This command was introduced.
8.3(1)	Support for password encryption was added.

Usage Guidelines

To use the Version 3 security model, you must first configure an SNMP group, then configure an SNMP user, and then configure an SNMP host. You must also specify Version 3 and a security level. When a community string is configured internally, two groups with the name “public” are automatically created—one for the Version 1 security model and one for the Version 2c security model. When you delete a community string, both configured groups are automatically deleted.

Note A user that is configured to belong to a certain group should have the same security model as the group.

During bootup or upgrade of the ASA, single-digit passwords and passwords starting with a digit followed by a whitespace are no longer supported. For example, 0 pass and 1 are invalid passwords.

Note If you downgrade from version 8.3(1) to a lower version of the ASA software and have configured encrypted passwords, you must first revert the encrypted passwords to clear text using the **no key config-key password encryption** command, then save the results.

Examples

The following example show how the ASA can receive SNMP requests using the SNMP Version 3 security model, which includes creating a group, creating a user, and creating a host:

```
hostname(config)# snmp-server group v3 vpn-group priv
hostname(config)# snmp-server user admin vpn group v3 auth sha letmein priv 3des cisco123
hostname(config)# snmp-server host mgmt 10.0.0.1 version 3 priv admin
```

Related Commands

Command	Description
clear configure snmp-server	Clears the SNMP configuration counters.
snmp-server host	Sets the SNMP host address.
snmp-server user	Creates a new SNMP user.

snmp-server host

To specify the NMS that can use SNMP on the ASA, use the **snmp-server host** command in global configuration mode. To disable the NMS, use the **no** form of this command.

snmp-server host {*interface* {*hostname* | *ip_address*}} [**trap** | **poll**] [**community** *0* | *8* *community-string*] [**version** {**1** | **2c** | **3** *username*}] [**udp-port** *port*]

no snmp-server host {*interface* {*hostname* | *ip_address*}} [**trap** | **poll**] [**community** *0* | *8* *community-string*] [**version** {**1** | **2c** | **3** *username*}] [**udp-port** *port*]

Syntax Description

0	(Optional) Specifies that an unencrypted (clear text) community string will follow.
8	Specifies that an encrypted community string will follow.
community	Specifies that a non-default string is required for requests from the NMS, or when generating traps sent to the NMS. Valid only for SNMP Version 1 or 2c.
community-string	Specifies the password-like community string that is sent with the notification or in a request from the NMS. The community string can have a maximum of 32 characters. Can be in encrypted or unencrypted (clear text) format.
hostname	Specifies the SNMP notification host, which is usually an NMS or SNMP manager.
interface	Specifies the interface name through which the NMS communicates with the ASA.
ip_address	Specifies the IP address of an NMS to which SNMP traps should be sent or from which the SNMP requests come. Supports *only* IPv4 addresses.
poll	(Optional) Specifies that the host is allowed to browse (poll), but no traps can be sent.
port	Sets the UDP port number of the NMS host.
trap	(Optional) Specifies that only traps can be sent, and that this host is not allowed to browse (poll).
udp-port	(Optional) Specifies that SNMP traps must be sent to an NMS host on a non-default port.
username	Specifies the username to embed in the trap PDU that is sent to the host. Valid only for SNMP Version 3.
version {**1** | **2c** | **3**}	(Optional) Sets the SNMP notification version to use for sending traps to Version 1, 2c, or 3.

Defaults

The default UDP port is 162.

The default version is 1.

SNMP traps are enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.2(1)	• SNMP Version 3 is supported. • The *username* argument was introduced. • The *text* argument was changed to the *community-string* argument. • The *interface_name* argument was changed to the *interface* argument.
8.3(1)	Support for encrypted passwords was added.

Usage Guidelines

If you configure the **snmp-server host** command on a port that is currently in use, the following message appears:

Warning **The UDP port *port* is in use by another feature. SNMP requests to the device will fail until the snmp-server listen-port command is configured to use a different port.**

The existing SNMP thread continues to poll every 60 seconds until the port is available, and issues syslog message %ASA-1-212001 if the port is still in use.

To use the Version 3 security model, you must configure an SNMP group first, then an SNMP user, and then an SNMP host. The username must already be configured on the device. When a device is configured as the standby unit of a failover pair, the SNMP engine ID and user configuration are replicated from the active unit. This action allows a transparent switchover from an SNMP Version 3 query perspective. No configuration changes are necessary in the NMS to accommodate a switchover event.

After you have used an encrypted community string, only the encrypted form is visible to all systems (for example, CLI, ASDM, CSM, and so on). The clear text password is not visible.

The encrypted community string is always generated by the ASA; you normally enter the clear text form.

During bootup or upgrade of the ASA, single-digit passwords and passwords starting with a digit followed by a whitespace are no longer supported. For example, 0 pass and 1 are invalid passwords.

Note If you downgrade from version 8.3(1) to a lower version of the ASA software and have configured encrypted passwords, you must first revert the encrypted passwords to clear text using the **no key config-key password encryption** command, then save the results.

Examples

The following example sets the host to 192.0.2.5, which is attached to the inside interface:

```
hostname(config)# snmp-server host inside 192.0.2.5
hostname(config)# snmp-server host inside 192.0.2.5 version 3 md5aes128 udp-port 190
```

The following example show how the ASA can receive SNMP requests using the SNMP Version 3 security model, which includes creating a group, creating a user, and creating a host:

```
hostname(config)# snmp-server group v3 vpn-group priv
hostname(config)# snmp-server user admin vpn group v3 auth sha letmein priv 3des cisco123
hostname(config)# snmp-server host mgmt 10.0.0.1 version 3 priv admin
```

The following example sets the host to use an encrypted community string:

```
hostname(config)# snmp-server host mgmt 1.2.3.4 community 8 LvAu+JdFG+GjPmZYlKvAhXpb28E=
```

The following example sets the host to use an unencrypted community string:

```
hostname(config)# snmp-server host mgmt 1.2.3.4 community 0 cisco
```

Related Commands

Command	Description
clear configure snmp-server	Clears SNMP configuration counters.
snmp-server enable	Enables SNMP on the ASA.
snmp-server group	Configures a new SNMP group.
snmp-server user	Configures a new SNMP user.

snmp-server listen-port

To set the listening port for SNMP requests, use the **snmp-server listen-port** command in global configuration mode. To restore the default port, use the **no** form of the command.

snmp-server listen-port *lport*

no snmp-server listen-port *lport*

Syntax Description

lport	The port on which incoming requests will be accepted[1].

1. The **snmp-server listen-port** command is only available in admin context, and is not available in the system context.

Defaults

The default port is 161.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

If you configure the **snmp-server listen-port** command on a port that is currently in use, the following message appears:

Warning **The UDP port** *port* **is in use by another feature. SNMP requests to the device will fail until the snmp-server listen-port command is configured to use a different port.**

The existing SNMP thread continues to poll every 60 seconds until the port is available, and issues syslog message %ASA-1-212001 if the port is still in use.

Examples

The following example sets the listening port to 192:

```
hostname(config)# snmp-server listen-port 192
```

Related Commands

Command	Description
snmp-server community	Sets the SNMP community string.
snmp-server contact	Sets the SNMP contact name.
snmp-server enable	Enables SNMP on the ASA.
snmp-server enable traps	Enables SNMP traps.
snmp-server location	Sets the SNMP server location string.

snmp-server location

To set the ASA location for SNMP, use the **snmp-server location** command in global configuration mode. To remove the location, use the **no** form of this command.

snmp-server location *text*

no snmp-server location [*text*]

Syntax Description

location *text*	Specifies the security appliance location. The **location** *text* is case sensitive and can be up to 127 characters. Spaces are accepted, but multiple spaces are shortened to a single space.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example sets the ASA location for SNMP as Building 42, Sector 54:

```
hostname(config)# snmp-server location Building 42, Sector 54
```

Related Commands

Command	Description
snmp-server community	Sets the SNMP community string.
snmp-server contact	Sets the SNMP contact name.
snmp-server enable	Enables SNMP on the ASA.
snmp-server enable traps	Enables SNMP traps.
snmp-server host	Sets the SNMP host address.

snmp-server user

To configure a new SNMP user, use the **snmp-server user** command in global configuration mode. To remove a specified SNMP user, use the **no** form of this command.

snmp-server user *username group-name* {**v3** [encrypted] [auth {md5 | sha} *auth-password]*} [priv {**des** | **3des** | **aes** {**128** | **192** | **256**}} *priv-password*]

no snmp-server user *username group-name* {**v3** [encrypted] [auth {md5 | sha} *auth-password]*} [priv {**des** | **3des** | **aes** {**128** | **192** | **256**}} *priv-password*]

Syntax Description

128	(Optional) Specifies the use of the 128-bit AES algorithm for encryption.
192	(Optional) Specifies the use of the 192-bit AES algorithm for encryption.
256	(Optional) Specifies the use of the 256-bit AES algorithm for encryption.
3des	(Optional) Specifies the use of the 168-bit 3DES algorithm for encryption.
aes	(Optional) Specifies the use of the AES algorithm for encryption.
auth	(Optional) Specifies which authentication level should be used.
auth-password	(Optional) Specifies a string that enables the agent to receive packets from the host. The minimum length is one character; the recommended length is at least eight characters, and should include letters and numbers. The maximum length is 64 characters. You can specify a plain-text password or a localized MD5 digest. If you have the localized MD5 or SHA digest, you can specify that string instead of the plain-text password. The digest should be formatted as aa:bb:cc:dd, where aa, bb, and cc are hexadecimal values. The digest should be exactly 16 octets long.
des	(Optional) Specifies the use of the 56-bit DES algorithm for encryption.
encrypted	(Optional) Specifies whether or not the password appears in encrypted format. Encrypted passwords must be in hexadecimal format.
group-name	Specifies the name of the group to which the user belongs.
md5	(Optional) Specifies the HMAC-MD5-96 authentication level.
priv	Specifies packet authentication with encryption.
priv-password	(Optional) Specifies a string that indicates the privacy user password. The minimum length is one character; the recommended length is at least eight characters, and should include letters and numbers. The maximum length is 64 characters. You can specify a plain-text password or a localized MD5 digest. If you have the localized MD5 or SHA digest, you can specify that string instead of the plain-text password. The digest should be formatted as aa:bb:cc:dd, where aa, bb, and cc are hexadecimal values. The digest should be exactly 16 octets long.
sha	(Optional) Specifies the HMAC-SHA-96 authentication level.
username	Specifies the name of the user on the host that connects to the agent.
v3	Specifies that the SNMP Version 3 security model should be used. Allows the use of the **encrypted, priv,** or **auth** keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

An SNMP user must be part of an SNMP group. To use the Version 3 security model, you must first configure an SNMP group, then configure an SNMP user, and then configure an SNMP host.

Note If you forget a password, you cannot recover it, and must reconfigure the user.

When the snmp-server user configuration is displayed on the console or written to a file (for example, the startup-configuration file), the localized authentication and privacy digests always appear instead of a plain-text password. This usage is required by RFC 3414, Section 11.2.

Note You must have a 3DES or AES feature license to configure users with the 3DES or AES algorithm.

During bootup or upgrade of the ASA, single-digit passwords and passwords starting with a digit followed by a whitespace are no longer supported. For example, 0 pass and 1 are invalid passwords.

Examples

The following example shows how the ASA can receive SNMP requests using the SNMP Version 3 security model:

```
hostname(config)# snmp-server group engineering v3 auth
hostname(config)# snmp-server user engineering v3 auth sha mypassword
```

Related Commands

Command	Description
clear configure snmp-server	Clears the SNMP server configuration.
snmp-server enable	Enables SNMP on the ASA.
snmp-server group	Creates a new SNMP group.
snmp-server host	Sets the SNMP host address.

CHAPTER 62

software-version through storage-objects Commands

software-version

To identify the Server and User-Agent header fields, which expose the software version of either a server or an endpoint, use the **software-version** command in parameters configuration mode. Parameters configuration mode is accessible from policy map configuration mode. To disable this feature, use the **no** form of this command.

software-version action {**mask** | **log**} [**log**}

no software-version action {**mask** | **log**} [**log**}

Syntax Description

log	Specifies standalone or additional log in case of violation.
mask	Masks the software version in the SIP message.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to identify the software version in a SIP inspection policy map:

```
hostname(config)# policy-map type inspect sip sip_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# software-version action log
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

speed

To set the speed of a copper (RJ-45) Ethernet interface, use the **speed** command in interface configuration mode. To restore the speed setting to the default, use the **no** form of this command.

speed {**auto** | **10** | **100** | **1000** | **nonegotiate**}

no speed [**auto** | **10** | **100** | **1000** | **nonegotiate**]

Syntax Description

10	Sets the speed to 10BASE-T.
100	Sets the speed to 100BASE-T.
1000	Sets the speed to 1000BASE-T. For copper Gigabit Ethernet only.
auto	Auto detects the speed.
nonegotiate	For fiber interfaces, sets the speed to 1000 Mbps and does not negotiate link parameters. This command and the **no** form of this command are the only settings available for fiber interfaces. When you set the value to **no speed nonegotiate** (the default), the interface enables link negotiation, which exchanges flow-control parameters and remote fault information.

Defaults

For copper interfaces, the default is **speed auto**.

For fiber interfaces, the default is **no speed nonegotiate**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was moved from a keyword of the **interface** command to an interface configuration mode command.

Usage Guidelines

Set the speed on the physical interface only.

If your network does not support auto detection, set the speed to a specific value.

For RJ-45 interfaces on the ASA 5500 series, the default auto-negotiation setting also includes the Auto-MDI/MDIX feature. Auto-MDI/MDIX eliminates the need for crossover cabling by performing an internal crossover when a straight cable is detected during the auto-negotiation phase. Either the speed or duplex must be set to auto-negotiate to enable Auto-MDI/MDIX for the interface. If you explicitly set both the speed and duplex to a fixed value, thus disabling auto-negotiation for both settings, then Auto-MDI/MDIX is also disabled.

If you set the speed to anything other than **auto** on PoE ports, if available, then Cisco IP phones and Cisco wireless access points that do not support IEEE 802.3af will not be detected and supplied with power.

Note Do not set the **speed** command for an ASA 5500x series or an ASA 5585 with fiber interfaces. Doing so causes a link failure.

Examples

The following example sets the speed to 1000BASE-T:

```
hostname(config)# interface gigabitethernet0/1
hostname(config-if)# speed 1000
hostname(config-if)# duplex full
hostname(config-if)# nameif inside
hostname(config-if)# security-level 100
hostname(config-if)# ip address 10.1.1.1 255.255.255.0
hostname(config-if)# no shutdown
```

Related Commands

Command	Description
clear configure interface	Clears all configuration for an interface.
duplex	Sets the duplex mode.
interface	Configures an interface and enters interface configuration mode.
show interface	Displays the runtime status and statistics of interfaces.
show running-config interface	Shows the interface configuration.

split-dns

To enter a list of domains to be resolved through the split tunnel, use the **split-dns** command in group-policy configuration mode. To delete a list, use the **no** form of this command.

To delete all split tunneling domain lists, use the **no split-dns** command without arguments. This deletes all configured split tunneling domain lists, including a null list created by issuing the **split-dns none** command.

When there are no split tunneling domain lists, users inherit any that exist in the default group policy. To prevent users from inheriting such split tunneling domain lists, use the **split-dns none** command.

split-dns {**value** *domain-name1 domain-name2 domain-nameN* | **none**}

no split-dns [*domain-name domain-name2 domain-nameN*]

Syntax Description

value *domain-name*	Provides a domain name that the ASA resolves through the split tunnel.
none	Indicates that there is no split DNS list. Sets a split DNS list with a null value, thereby disallowing a split DNS list. Prevents inheriting a split DNS list from a default or specified group policy.

Defaults

Split DNS is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Group-policy configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Use a single space to separate each entry in the list of domains. There is no limit on the number of entries, but the entire string can be no longer than 255 characters. You can use only alphanumeric characters, hyphens (-), and periods (.).

The **no split-dns** command, when used without arguments, deletes all current values, including a null value created by issuing the **split-dns none** command.

Starting with version 3.0.4235, AnyConnect Secure Mobility Client supports true split DNS functionality for Windows platforms.

Examples

The following example shows how to configure the domains Domain1, Domain2, Domain3 and Domain4 to be resolved through split tunneling for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# split-dns value Domain1 Domain2 Domain3 Domain4
```

Related Commands

Command	Description
default-domain	Specifies a default domain name that the IPsec client uses the for DNS queries which omit the domain field.
split-dns	Provides a list of domains to be resolved through the split tunnel.
split-tunnel-network-list	Identifies the access list the ASA uses to distinguish which networks require tunneling.
split-tunnel-policy	Lets an IPsec client conditionally direct packets over an IPsec tunnel in encrypted form, or to a network interface in cleartext form

split-horizon

To reenable EIGRP split horizon, use the **split-horizon** command in interface configuration mode. To disable EIGRP split horizon, use the **no** form of this command.

split-horizon eigrp *as-number*

no split-horizon eigrp *as-number*

Syntax Description

as-number	The autonomous system number of the EIGRP routing process.

Defaults

The **split-horizon** command is enabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

For networks that include links over X.25 packet-switched networks, you can use the **neighbor** command to defeat the split horizon feature. As an alternative, you can explicitly specify the **no split-horizon eigrp** command in your configuration. However, if you do so, you must similarly disable split horizon for all routers and access servers in any relevant multicast groups on that network.

In general, it is best that you not change the default state of split horizon unless you are certain that your application requires the change in order to properly advertise routes. If split horizon is disabled on a serial interface and that interface is attached to a packet-switched network, you must disable split horizon for all routers and access servers in any relevant multicast groups on that network.

Examples

The following example disables EIGRP split horizon on interface Ethernet0/0:

```
hostname(config)# interface Ethernet0/0
hostname(config-if)# no split-horizon eigrp 100
```

Related Commands

Command	Description
router eigrp	Creates an EIGRP routing process and enters configuration mode for that process.

split-tunnel-all-dns

To enable the AnyConnect Secure Mobility Client to the resolve all DNS addresses through the VPN tunnel, use the **split-tunnel-all-dns** command from group policy configuration mode.

To remove the command from the running configuration, use the **no** form of this command. This enables inheritance of the value from another group policy.

split-tunnel-all-dns {**disable | enable**}

no split-tunnel-all-dns [{**disable | enable**}]

Syntax Description

disable (default)	The AnyConnect client sends DNS queries over the tunnel according to the split tunnel policy—tunnel all networks, tunnel networks specified in a network list, or exclude networks specified in a network list.
enable	The AnyConnect client resolves all DNS addresses through the VPN tunnel.

Defaults

The default is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy configuration	•	—	•	—	—

Command History

Release	Modification
8.2(5)	This command was introduced.

Usage Guidelines

The **split-tunnel-all-dns enable** command applies to VPN connections using the SSL or IPsec/IKEv2 protocol, and instructs the AnyConnect client to resolve all DNS addresses through the VPN tunnel. If DNS resolution fails, the address remains unresolved and the AnyConnect client does not try to resolve the address through public DNS servers.

By default, this feature is disabled. The client sends DNS queries over the tunnel according to the split tunnel policy—tunnel all networks, tunnel networks specified in a network list, or exclude networks specified in a network list.

Examples

The following example configures the ASA to enable the AnyConnect client to resolve all DNS queries through the VPN tunnel:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# split-tunnel-all-dns enable
```

Related Commands

Command	Description
default-domain	Specifies a default domain name that the legacy IPsec (IKEv1) VPN client or the AnyConnect VPN Client (SSL) uses for DNS queries that omit the domain field.
split-dns	Provides a list of domains to be resolved through the split tunnel.
split-tunnel-network-list	Identifies the access list the ASA uses to distinguish networks that require tunneling and those that do not.
split-tunnel-policy	Lets a legacy VPN client (IPsec/IKEv1) or the AnyConnect VPN client (SSL) conditionally direct packets over a tunnel in encrypted form, or to a network interface in clear text form

split-tunnel-network-list

To create a network list for split tunneling, use the **split-tunnel-network-list** command in group-policy configuration mode. To delete a network list, use the **no** form of this command.

To delete all split tunneling network lists, use the **no split-tunnel-network-list** command without arguments. This deletes all configured network lists, including a null list created by issuing the **split-tunnel-network-list none** command.

When there are no split tunneling network lists, users inherit any network lists that exist in the default or specified group policy. To prevent users from inheriting such network lists, use the **split-tunnel-network-list none** command.

Split tunneling network lists distinguish networks that require traffic to travel across the tunnel from those that do not require tunneling.

split-tunnel-network-list {value *access-list name* **| none}**

no split-tunnel-network-list value [*access-list name*]

Syntax Description

none	Indicates that there is no network list for split tunneling; the ASA tunnels all traffic. Sets a split tunneling network list with a null value, thereby disallowing split tunneling. Prevents inheriting a default split tunneling network list from a default or specified group policy.
value *access-list name*	Identifies an access list that enumerates the networks to tunnel or not tunnel.

Defaults

By default, there are no split tunneling network lists.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The ASA makes split tunneling decisions on the basis of a network list, which is a standard ACL that consists of a list of addresses on the private network.

The **no split-tunnel-network-list** command, when used without arguments, deletes all current network lists, including a null value created by issuing the **split-tunnel-network-list none** command.

Note The ASA provides supports for 200 split networks.

Examples

The following example shows how to set a network list called FirstList for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# split-tunnel-network-list FirstList
```

Related Commands

Command	Description
access-list	Creates an access list, or uses a downloadable access list.
default-domain	Specifies a default domain name that he IPsec client uses the for DNS queries that omit the domain field.
split-dns	Provides a list of domains to be resolved through the split tunnel.
split-tunnel-policy	Lets an IPsec client conditionally direct packets over an IPsec tunnel in encrypted form, or to a network interface in cleartext form.

split-tunnel-policy

To set a split tunneling policy, use the **split-tunnel-policy** command in group-policy configuration mode. To remove the split-tunnel-policy attribute from the running configuration, use the **no** form of this command. This enables inheritance of a value for split tunneling from another group policy.

Split tunneling lets a remote-access VPN client conditionally direct packets over an IPsec or SSL tunnel in encrypted form, or to a network interface in cleartext form. With split-tunneling enabled, packets not bound for destinations on the other side of the IPsec or SSL VPN tunnel endpoint do not have to be encrypted, sent across the tunnel, decrypted, and then routed to a final destination.

This command applies this split tunneling policy to a specific network.

split-tunnel-policy {tunnelall | tunnelspecified | excludespecified}

no split-tunnel-policy

Syntax Description

excludespecified	Defines a list of networks to which traffic goes in the clear. This feature is useful for remote users who want to access devices on their local network, such as printers, while they are connected to the corporate network through a tunnel.
split-tunnel-policy	Indicates that you are setting rules for tunneling traffic.
tunnelall	Specifies that no traffic goes in the clear or to any other destination than the ASA. Remote users reach internet networks through the corporate network and do not have access to local networks.
tunnelspecified	Tunnels all traffic from or to the specified networks. This option enables split tunneling. It lets you create a network list of addresses to tunnel. Data to all other addresses travels in the clear, and is routed by the remote user's internet service provider.

Defaults

Split tunneling is disabled by default, which is tunnelall.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Group-policy configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Split tunneling is primarily a traffic management feature, not a security feature. In fact, for optimum security, we recommend that you not enable split tunneling.

Examples

The following example shows how to set a split tunneling policy of tunneling only specified networks for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# split-tunnel-policy tunnelspecified
```

Related Commands

Command	Description
default-domain	Specifies a default domain name that he IPsec client uses the for DNS queries that omit the domain field.
split-dns	Provides a list of domains to be resolved through the split tunnel.
split-tunnel-network-list none	Indicates that no access list exists for split tunneling. All traffic travels across the tunnel.
split-tunnel-network-list value	Identifies the access list the ASA uses to distinguish networks that require tunneling and those that do not.

spoof-server

To substitute a string for the server header field for HTTP protocol inspection, use the **spoof-server** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

spoof-server *string*

no spoof-server *string*

Syntax Description

string	String to substitute for the server header field. 82 characters maximum.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

WebVPN streams are not subject to the **spoof-server** comand.

Examples

The following example shows how to substitute a string for the server header field in an HTTP inspection policy map:

```
hostname(config-pmap-p)# spoof-server string
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

sq-period

To specify the interval between each successful posture validation in a NAC Framework session and the next query for changes in the host posture, use the **sq-period** command in nac-policy-nac-framework configuration mode. To remove the command from the NAC policy, use the **no** form of this command.

sq-period *seconds*

no sq-period [*seconds*]

Syntax Description

seconds	Number of seconds between each successful posture validation. The range is 30 to 1800.

Defaults

The default value is 300.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Nac-policy-nac-framework configuration	•	—	•	—	—

Command History

Release	Modification
7.3(0)	"nac-" removed from command name. Command moved from group-policy configuration mode to nac-policy-nac-framework configuration mode.
7.2(1)	This command was introduced.

Usage Guidelines

The ASA starts the status query timer after each successful posture validation and status query response. The expiration of this timer triggers a query for changes in the host posture, referred to as a *status query.*

Examples

The following example changes the value of the status query timer to 1800 seconds:

```
hostname(config-nac-policy-nac-framework)# sq-period 1800
hostname(config-nac-policy-nac-framework)
```

The following example removes the status query timer from the NAC Framework policy:

```
hostname(config-nac-policy-nac-framework)# no sq-period
hostname(config-nac-policy-nac-framework)
```

Related Commands

Command	Description
nac-policy	Creates and accesses a Cisco NAC policy, and specifies its type.
nac-settings	Assigns a NAC policy to a group policy.
eou timeout	Changes the number of seconds to wait after sending an EAP over UDP message to the remote host in a NAC Framework configuration.
reval-period	Specifies the interval between each successful posture validation in a NAC Framework session.
debug eap	Enables logging of Extensible Authentication Protocol events to debug NAC Framework messaging.

ssh

To add SSH access to the ASA, use the **ssh** command in global configuration mode. To disable SSH access to the ASA, use the **no** form of this command.

ssh {*ip_address mask* | *ipv6_address/prefix*} *interface*

no ssh {*ip_address mask* | *ipv6_address/prefix*} *interface*

Syntax Description

interface	The ASA interface on which SSH is enabled. If not specified, SSH is enabled on all interfaces except the outside interface.
ip_address	IPv4 address of the host or network authorized to initiate an SSH connection to the ASA. For hosts, you can also enter a host name.
ipv6_address/prefix	The IPv6 address and prefix of the host or network authorized to initiate an SSH connection to the ASA.
mask	Network mask for *ip_address*.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command supports IPv4 and IPv6 addresses. The **ssh** *ip_address* command specifies hosts or networks that are authorized to initiate an SSH connection to the ASA. You can have multiple ssh commands in the configuration. The **no** form of the command removes a specific SSH command from the configuration. Use the **clear configure ssh** command to remove all SSH commands.

Before you can begin using SSH to the ASA, you must generate a default RSA key using the **crypto key generate rsa** command.

The following security algorithms and ciphers are supported on the ASA:

- 3DES and AES ciphers for data encryption
- HMAC-SHA and HMAC-MD5 algorithms for packet integrity
- RSA public key algorithm for host authentication

The following SSH Version 2 features are not supported on the ASA:

- X11 forwarding
- Port forwarding
- SFTP support
- Kerberos and AFS ticket passing
- Data compression

Examples

The following example shows how to configure the inside interface to accept SSH version 2 connections from a management console with the IP address 10.1.1.1. The idle session timeout is set to 60 minutes and SCP is enabled.

```
hostname(config)# ssh 10.1.1.1 255.255.255.0 inside
hostname(config)# ssh version 2
hostname(config)# ssh scopy enable
hostname(config)# ssh timeout 60
```

Related Commands

Command	Description
clear configure ssh	Clears all SSH commands from the running configuration.
crypto key generate rsa	Generates RSA key pairs for identity certificates.
debug ssh	Displays debugging information and error messages for SSH commands.
show running-config ssh	Displays the current SSH commands in the running configuration.
ssh scopy enable	Enables a secure copy server on the ASA.
ssh version	Restricts the ASA to using either SSH Version 1 or SSH Version 2.

ssh authentication

To enable public key authentication on a per-user basis, use the **ssh authentication** command in username attributes mode. To disable public key authentication on a per-user basis, use the **no** form of this command.

ssh authentication {**pkf** | **publickey** [**nointeractive**] *key* [**hashed**]}

no ssh authentication {**pkf** | **publickey** [**nointeractive**] *key* [**hashed**]}

Syntax Description

hashed	Hashed with SHA-256 and 32 bytes long, with each byte separated by a colon (for parsing purposes).
key	The value of the *key* argument can be one of the following: • When the *key* argument is supplied and the hashed tag is not specified, the value of the key must be a Base 64 encoded public key that is generated by SSH key generation software that can generate SSH-RSA raw keys (that is, with no certificates). After you submit the Base 64 encoded public key, that key is then hashed via SHA-256 and the corresponding 32-byte hash is used for all further comparisons. • When the *key* argument is supplied and the hashed tag is specified, the value of the key must have been previously hashed with SHA-256 and be 32 bytes long, with each byte separated by a colon (for parsing purposes).
nointeractive	The **nointeractive** option suppresses all prompts when importing an SSH public key file formatted key. This noninteractive data entry mode is only intended for ASDM use.
pkf	For a **pkf** key, you are prompted to paste in a PKF formatted key, up to 4096 bits. Use this format for keys that are too large to paste inline in Base64 format. For example, you can generate a 4096-bit key using ssh keygen, then convert it to PKF, and use the **pkf** keyword to be prompted for the key. **Note** You can use the **pkf** option with failover, but the PKF key is not automatically replicated to the standby system. You must enter the **write standby** command to synchronize the PKF key.
publickey	For a **publickey**, the *key* is a Base64-encoded public key. You can generate the key using any SSH key generation software (such as ssh keygen) that can generate SSH-RSA raw keys (with no certificates).

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Username attributes	•	•	•	•	—

Command History

Release	Modification
9.1(2)	This command was introduced.

Usage Guidelines

You can specify a public key file (PKF) formatted key (the **pkf** keyword) or a Base64 key (the **publickey** keyword).

The *key* field and the **hashed** keyword are only available with the **publickey** option, and the **nointeractive** keyword is only available with the **pkf** option.

When you save the configuration, the hashed key value is saved to the configuration and used when the ASA is rebooted.

When you view the key on the ASA using the **show running-config username** command, the key is encrypted using a SHA-256 hash. Even if you entered the key as **pkf**, the ASA hashes the key, and shows it as a hashed **publickey**. If you need to copy the key from **show** output, specify the **publickey** type with the **hashed** keyword.

Examples

The following example shows how to authenticate using a PKF formatted key:

```
hostname(config-username)# ssh authentication pkf

Enter an SSH public key formatted file.
End with the word "quit" on a line by itself:
---- BEGIN SSH2 PUBLIC KEY ----
Comment: "4096-bit RSA, converted by xxx@xxx from OpenSSH"
AAAAB3NzaC1yc2EAAAADAQABAAACAQDNUvkgza37lB/Q/fljpLAv1BbyAd5PJCJXh/U4LO
hleR/qgIROjpnFaS7Az8/+sjHmq0qXC5TXkzWihvRZbhefyPhPHCi0hIt4oUF2ZbXESA/8
jUT4ehXIUE7FrChffBBtbD4d9FkV8A2gwZCDJBxEM26ocbZCSTx9QC//wt6E/zRcdoqiJG
p4ECEdDaM+56l+yf73NUigO7wYkqcrzjmI1rZRDLVcqtj8Q9qD3MqsV+PkJGSGiqZwnyIl
QbfYxXHU9wLdWxhUbA/xOjJuZ15TQMa7KLs2u+RtrpQgeTGTffIh6O+xKh93gwTgzaZTK4
CQ1kuMrRdNRzza0byLeYPtSlv6Lv6F6dGtwlqrX5a+w/tV/aw9WUg/rapekKloz3tsPTDe
p866AFzU+Z7pVR1389iNuNJHQS7IUA2m0cciIuCM2we/tVqMPYJl+xgKAkuHDkBlMS4i8b
Wzyd+4EUMDGGZVeO+corKTLWFO1wIUieRkrUaCzjComGYZdzrQT2mXBcSKQNWlSCBpCHsk
/r5uTGnKpCNWfL7vd/sRCHyHKsxjsXR15C/5zgHmCTAaGOuIq0Rjo34+61+70PCtYXebxM
Wwm19e3eH2PudZd+rj1dedfr2/IrislEBRJWGLoR/N+xsvwVVM1Qqw1uL4r99CbZF9NghY
NRxCQOY/7K77II==
---- END SSH2 PUBLIC KEY ----quit
INFO: Import of an SSH public key formatted file SUCCEEDED.
hostname(config-username)
```

Related Commands

Command	Description
clear configure ssh	Clears all SSH commands from the running configuration.
debug ssh	Displays debugging information and error messages for SSH commands.

Command	Description
show running-config ssh	Displays the current SSH commands in the running configuration.
ssh version	Restricts the ASA to using either SSH Version 1 or SSH Version 2.

ssh disconnect

To disconnect an active SSH session, use the **ssh disconnect** command in privileged EXEC mode.

ssh disconnect *session_id*

Syntax Description

session_id	Disconnects the SSH session specified by the ID number.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You must specify a session ID. Use the **show ssh sessions** command to obtain the ID of the SSH session you want to disconnect.

Examples

The following example shows an SSH session being disconnected:

```
hostname# show ssh sessions
SID Client IP       Version Mode Encryption Hmac     State           Username
0   172.69.39.39    1.99    IN   aes128-cbc md5      SessionStarted  pat
                            OUT  aes128-cbc md5      SessionStarted  pat
1   172.23.56.236   1.5     -    3DES       -        SessionStarted  pat
2   172.69.39.29    1.99    IN   3des-cbc   sha1     SessionStarted  pat
                            OUT  3des-cbc   sha1     SessionStarted  pat
hostname# ssh disconnect 2
hostname# show ssh sessions
SID Client IP       Version Mode Encryption Hmac     State           Username
0   172.69.39.29    1.99    IN   aes128-cbc md5      SessionStarted  pat
                            OUT  aes128-cbc md5      SessionStarted  pat
1   172.23.56.236   1.5     -    3DES       -        SessionStarted  pat
```

Related Commands

Command	Description
show ssh sessions	Displays information about active SSH sessions to the ASA.
ssh timeout	Sets the timeout value for idle SSH sessions.

ssh key-exchange

To exchange keys using either the Diffie-Hellman (DH) Group 1 or DH Group 14 key-exchange method, use the **ssh key-exchange** command in global configuration mode. To disable key exchange using either the DH Group 1 or DH Group 14 key-exchange method, use the **no** form of this command.

ssh key-exchange group {**dh-group1** | **dh-group14**} **sha1**

no ssh key-exchange group {**dh-group1** | **dh-group14**} **sha1**

Syntax Description

dh-group1	Indicates that the DH group 1 key-exchange method will follow and should be used when exchanging keys. DH group 2 is called DH group 1 for legacy reasons.
dh-group14	Indicates that the DH group 14 key-exchange method will follow and should be used when exchanging keys.
group	Indicates that either the DH group 1 key-exchange method or the DH group 14 key-exchange method will follow and should be used when exchanging keys.
key-exchange	Specifies that either the DH group 1 or DH group 14 key-exchange method will follow and should be used when exchanging keys.
sha-1	Specifies that the SHA-1 encryption algorithm should be used.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.4(4)	This command was introduced.
9.1(2)	This command was changed to **ssh key-exchange group dh-group1-sha1**.

Usage Guidelines

Before you can begin using SSH to the ASA, you must generate a default RSA key using the **crypto key generate rsa** command.

Both the DH Group 1 and Group 14 key-exchange methods for key exchange are supported on the ASA. If no DH group key-exchange method is specified, the DH group 1 key-exchange method is used. For more information about using DH key-exchange methods, see RFC 4253.

Note This command is not available in the 9.1(1) or 9.1.1(2) release.

Examples

The following example shows how to exchange keys using the DH Group 14 key-exchange method:

```
hostname(config)# ssh key-exchange dh-group-1-sha1
```

Related Commands

Command	Description
clear configure ssh	Clears all SSH commands from the running configuration.
crypto key generate rsa	Generates RSA key pairs for identity certificates.
debug ssh	Displays debugging information and error messages for SSH commands.
show running-config ssh	Displays the current SSH commands in the running configuration.
ssh scopy enable	Enables a secure copy server on the ASA.
ssh version	Restricts the ASA to using either SSH Version 1 or SSH Version 2.

ssh scopy enable

To enable Secure Copy (SCP) on the ASA, use the **ssh scopy enable** command in global configuration mode. To disable SCP, use the **no** form of this command.

ssh scopy enable

no ssh scopy enable

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

SCP is a server-only implementation; it will be able to accept and terminate connections for SCP but can not initiate them. The ASA has the following restrictions:

- There is no directory support in this implementation of SCP, limiting remote client access to the ASA internal files.
- There is no banner support when using SCP.
- SCP does not support wildcards.
- The ASA license must have the VPN-3DES-AES feature to support SSH version 2 connections.

Before initiating the file transfer, the ASA check available Flash memory. If there is not enough available space, the ASA terminates the SCP connection. If you are overwriting a file in Flash memory, you still need to have enough free space for the file being copied to the ASA. The SCP process copies the file to a temporary file first, then copies the temporary file over the file being replaced. If you do not have enough space in Flash to hold the file being copied and the file being overwritten, the ASA terminates the SCP connection.

Examples

The following example shows how to configure the inside interface to accept SSH Version 2 connections from a management console with the IP address 10.1.1.1. The idle session timeout is set to 60 minutes and SCP is enabled.

```
hostname(config)# ssh 10.1.1.1 255.255.255.0 inside
hostname(config)# ssh version 2
hostname(config)# ssh scopy enable
hostname(config)# ssh timeout 60
```

Related Commands

Command	Description
clear configure ssh	Clears all SSH commands from the running configuration.
debug ssh	Displays debug information and error messages for SSH commands.
show running-config ssh	Displays the current SSH commands in the running configuration.
ssh	Allows SSH connectivity to the ASA from the specified client or network.
ssh version	Restricts the ASA to using either SSH Version 1 or SSH Version 2.

ssh timeout

To change the default SSH session idle timeout value, use the **ssh timeout** command in global configuration mode. To restore the default timeout value, use the **no** form of this command.

ssh timeout *number*

no ssh timeout

Syntax Description

number	Specifies the duration in minutes that an SSH session can remain inactive before being disconnected. Valid values are from 1 to 60 minutes.

Defaults

The default session timeout value is 5 minutes.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
Preexisting	This command was preexisting.

Usage Guidelines

The **ssh timeout** command specifies the duration in minutes that a session can be idle before being disconnected. The default duration is 5 minutes.

Examples

The following example shows how to configure the inside interface to accept only SSH version 2 connections from a management console with the IP address 10.1.1.1. The idle session timeout is set to 60 minutes and SCP is enabled.

```
hostname(config)# ssh 10.1.1.1 255.255.255.0 inside
hostname(config)# ssh version 2
hostname(config)# ssh copy enable
hostname(config)# ssh timeout 60
```

Related Commands

Command	Description
clear configure ssh	Clears all SSH commands from the running configuration.
show running-config ssh	Displays the current SSH commands in the running configuration.

Command	Description
show ssh sessions	Displays information about active SSH sessions to the ASA.
ssh disconnect	Disconnects an active SSH session.

ssh version

To restrict the version of SSH accepted by the ASA, use the **ssh version** command in global configuration mode. To restore the default value, use the **no** form of this command. The default values permits SSH Version 1 and SSH Version 2 connections to the ASA.

ssh version {**1** | **2**}

no ssh version [**1** | **2**]

Syntax Description

1	Specifies that only SSH Version 1 connections are supported.
2	Specifies that only SSH Version 2 connections are supported.

Defaults

By default, both SSH Version 1 and SSH Version 2 are supported.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

1 and 2 specify which version of SSH the ASA is restricted to using. The **no** form of the command returns the ASA to the default stance, which is compatible mode (both version can be used).

Examples

The following example shows how to configure the inside interface to accept SSH Version 2 connections from a management console with the IP address 10.1.1.1. The idle session timeout is set to 60 minutes and SCP is enabled.

```
hostname(config)# ssh 10.1.1.1 255.255.255.0 inside
hostname(config)# ssh version 2
hostname(config)# ssh copy enable
hostname(config)# ssh timeout 60
```

Related Commands

Command	Description
clear configure ssh	Clears all SSH commands from the running configuration.
debug ssh	Displays debug information and error messages for SSH commands.

Command	Description
show running-config ssh	Displays the current SSH commands in the running configuration.
ssh	Allows SSH connectivity to the ASA from the specified client or network.

ssl certificate-authentication

To enable client certificate authentication for backwards compatibility for versions previous to 8.2(1), use the **ssl certificate-authentication** command in global configuration mode. To disable ssl certificate authentication, use the **no** version of this command.

ssl certificate-authentication interface *interface-name* **port** *port-number*

no ssl certificate-authentication interface *interface-name* **port** *port-numbe***r**

Syntax Description

interface-name	The name of the selected interface, such as inside, management, and outside.
port-number	The TCP port number, an integer in the range 1-65535.

Defaults

This feature is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
8.0(3)	This command was introduced.
8.2(1)	This command is no longer needed, but the ASA retains it for downgrading to previous versions.

Usage Guidelines

This command replaces the deprecated http authentication-certificate command.

Examples

The following example shows how to configure the ASA to use the SSL certificate authentication feature:

```
hostname(config)# ssl certificate-authentication interface inside port 330
```

Related Commands

Command	Description
show running-config ssl	Displays the current set of configured SSL commands.

ssl client-version

To specify the SSL/TLS protocol version the ASA uses when acting as a client, use the **ssl client-version** command in global configuration mode. To revert to the default, **any**, use the **no** version of this command. This command lets you restrict the versions of SSL/TLS that the ASA sends.

ssl client-version [*any* | *sslv3-only* | *tlsv1-only*]

no ssl client-version

Syntax Description

any	The ASA sends SSL version3 hellos, and negotiates either SSL version 3 or TLS version 1.
sslv3-only	The security appliance sends SSL version 3 hellos, and accepts only SSL version 3.
tlsv1-only	The security appliance sends TLSv1 client hellos, and accepts only TLS version 1.

Defaults

The default value is **any**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

TCP Port Forwarding does not work when a WebVPN user connects with some SSL versions, as follows:

Negotiate SSLv3	Java downloads
Negotiate SSLv3/TLSv1	Java downloads
Negotiate TLSv1	Java does NOT download
TLSv1Only	Java does NOT download
SSLv3Only	Java does NOT download

The issue is that JAVA only negotiates SSLv3 in the client Hello packet when you launch the Port Forwarding application.

Examples

The following example shows how to configure the ASA to communicate using only TLSv1 when acting as an SSL client:

```
hostname(config)# ssl client-version tlsv1-only
```

Related Commands

Command	Description
clear config ssl	Removes all SSL commands from the configuration, reverting to the default values.
ssl encryption	Specifies the encryption algorithms that the SSL/TLS protocol uses.
show running-config ssl	Displays the current set of configured SSL commands.
ssl server-version	Specifies the SSL/TLS protocol version the ASA uses when acting as a server.
ssl trust-point	Specifies the certificate trust point that represents the SSL certificate for an interface.

ssl encryption

To specify the encryption algorithms for the SSL DTLS and TLS protocols, use the **ssl encryption** command in global configuration mode**.** Issuing the command again overwrites the previous setting. To restore the default, which is the complete set of encryption algorithms, use the **no** version of the command.

ssl encryption [**3des-sha1**] [**aes128-sha1**] [**aes256-sha1**] [**des-sha1**] [**null-sha1**] [**rc4-md5**] [**rc4-sha1**] **[dhe-aes256-sha1] [dhe-aes128-sha1]**

no ssl encryption

Syntax Description

3des-sha1	Specifies triple DES 168-bit encryption with Secure Hash Algorithm 1 (FIPS-compliant).
aes128-sha1	Specifies triple AES 128-bit encryption with Secure Hash Algorithm 1 (FIPS-compliant).
aes256-sha1	Specifies triple AES 256-bit encryption with Secure Hash Algorithm 1 (FIPS-compliant).
dhe-aes128-sha1	Specifies AES 128-bit encryption ciphersuites for Transport Layer Security (TLS).
dhe-aes256-sha1	Specifies AES 256-bit encryption ciphersuites for Transport Layer Security (TLS).
des-sha1	Specifies DES 56-bit encryption with Secure Hash Algorithm 1.
null-sha1	Specifies null encryption with Secure Hash Algorithm 1. This setting enforces message integrity without confidentiality. ⚠ **Caution** If you specify **null-sha1**, data is not encrypted.
rc4-md5	Specifies RC4 128-bit encryption with an MD5 hash function.
rc4-sha1	Specifies RC4 128-bit encryption with Secure Hash Algorithm 1.

Defaults

By default, the SSL encryption list on the ASA contains these algorithms in the following order:

1. RC4-SHA1
2. AES128-SHA1 (FIPS-compliant)
3. AES256-SHA1 (FIPS-compliant)
4. 3DES-SHA1 (FIPS-compliant)
5. DHE-AES256-SHA1
6. DHE-AES128-SHA1

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.
9.1(2)	Support for ssl encryption dhe-aes128-sha1 and dhe-aes256-sha1 was added.

Usage Guidelines

The ASDM License tab reflects the maximum encryption the license supports, not the value you configure.

The ordering of the algorithms determines preference for their use. You can add or remove algorithms to meet the needs of your environment.

For FIPS-compliant AnyConnect client SSL connections, you must ensure a FIPS-compliant cipher is the first one specified in the list of SSL encryptions.

Several applications do not support DHE, so include at least one other SSL encryption method to ensure a cipher suite common to both.

Cryptographic operations use symmetric-key algorithms as referenced in http://en.wikipedia.org/wiki/Symmetric-key_algorithm.

Examples

The following example shows how to configure the ASA to use the 3des-sha1 and des-sha1 encryption algorithms:

```
hostname(config)# ssl encryption 3des-sha1 des-sha1
```

Related Commands

Command	Description
clear config ssl	Removes all SSL commands from the configuration, reverting to the default values.
show running-config ssl	Displays the current set of configured SSL commands.
ssl client-version	Specifies the SSL/TLS protocol version the ASA uses when acting as a client.
ssl server-version	Specifies the SSL/TLS protocol version the ASA uses when acting as a server.
ssl trust-point	Specifies the certificate trust point that represents the SSL certificate for an interface.

ssl server-version

To specify the SSL/TLS protocol version the ASA uses when acting as a server, use the **ssl server-version** command in global configuration mode. To revert to the default, any, use the **no** version of this command. This command lets you restrict the versions of SSL/TSL that the ASA accepts.

ssl server-version [*any* | *sslv3* | *tlsv1* | *sslv3-only* | *tlsv1-only*]

no ssl server-version

Syntax Description

any	The ASA accepts SSL version 2 client hellos, and negotiates either SSL version 3 or TLS version 1.
sslv3	The ASA accepts SSL version 2 client hellos, and negotiates to SSL version 3.
sslv3-only	The security appliance accepts only SSL version 3 client hellos, and uses only SSL version 3.
tlsv1	The ASA accepts SSL version 2 client hellos, and negotiates to TLS version 1.
tlsv1-only	The security appliance accepts only TLSv1 client hellos, and uses only TLS version 1.

Defaults

The default value is **any**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

TCP Port Forwarding does not work when a WebVPN user connects with some SSL versions, as follows:

Negotiate SSLv3	Java downloads
Negotiate SSLv3/TLSv1	Java downloads
Negotiate TLSv1	Java does NOT download
TLSv1Only	Java does NOT download
SSLv3Only	Java does NOT download

If you configure e-mail proxy, do not set thhe SSL version to TLSv1 Only. Outlook and Outlook Express do not support TLS.

Remote endpoints with FIPS enabled cannot communicate when ssl-version is configured for sslv3 or sslv3-only. For that environment, set ssl server-version to tlsv1 or to any.

Examples

The following example shows how to configure the ASA to communicate using only TLSv1 when acting as an SSL server:

```
hostname(config)# ssl server-version tlsv1-only
```

Related Commands

Command	Description
clear config ssl	Removes all ssl commands from the configuration, reverting to the default values.
show running-config ssl	Displays the current set of configured ssl commands.
ssl client-version	Specifies the SSL/TLS protocol version the ASA uses when acting as a client.
ssl encryption	Specifies the encryption algorithms that the SSL/TLS protocol uses.
ssl trust-point	Specifies the certificate trust point that represents the SSL certificate for an interface.

ssl trust-point

To specify the certificate trustpoint that represents the SSL certificate for an interface, use the **ssl trust-point** command with the *interface* argument in global configuration mode. If you do not specify an interface, this command creates the fallback trustpoint for all interfaces that do not have a trustpoint configured. To remove an SSL trustpoint from the configuration that does not specify an interface, use the **no** version of this command. To remove an entry that does specify an interface, use the **no ssl trust-point {***trustpoint [interface]***}** version of the command.

ssl trust-point {*trustpoint [interface]***}**

no ssl trust-point

Syntax Description

interface	The name for the interface to which the trustpoint applies. The **nameif** command specifies the name of the interface.
trustpoint	The *name* of the CA trustpoint as configured in the **crypto ca trustpoint** {*name*} command.

Defaults

The default is no trustpoint association. The ASA uses the default self-generated RSA key-pair certificate.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Observe these guidelines when using this command:

- The value for *trustpoint* must be the name of the CA trustpoint as configured in the **crypto ca trustpoint {*name*}** command.
- The value for *interface* must be the *nameif* name of a previously configured interface.
- Removing a trustpoint also removes any **ssl trust-point** entries that reference that trustpoint.
- You can have one **ssl trustpoint** entry for each interface and one that specifies no interfaces.
- You can reuse the same trustpoint for multiple entries.

The following example explains how to use the **no** versions of this command:

The configuration includes these SSL trustpoints:

```
ssl trust-point tp1
ssl trust-point tp2 outside
```

Issue the command:

no ssl trust-point

Then show run ssl will have:

ssl trust-point tp2 outside

Examples

The following example shows how to configure an ssl trustpoint called FirstTrust for the inside interface, and a trustpoint called DefaultTrust with no associated interface.

```
hostname(config)# ssl trust-point FirstTrust inside
hostname(config)# ssl trust-point DefaultTrust
```

The next example shows how to use the **no** version of the command to delete a trustpoint that has no associated interface:

```
hostname(config)# show running-configuration ssl
ssl trust-point FirstTrust inside
ssl trust-point DefaultTrust
hostname(config)# no ssl trust-point
hostname(config)# show running-configuration ssl
ssl trust-point FirstTrust inside
```

The next example shows how to delete a trustpoint that does have an associated interface:

```
hostname(config)# show running-configuration ssl
ssl trust-point FirstTrust inside
ssl trust-point DefaultTrust
hostname(config)# no ssl trust-point FirstTrust inside
hostname(config)# show running-configuration ssl
ssl trust-point DefaultTrust
```

Related Commands

Command	Description
clear config ssl	Removes all SSL commands from the configuration, reverting to the default values.
show running-config ssl	Displays the current set of configured SSL commands.
ssl client-version	Specifies the SSL/TLS protocol version the ASA uses when acting as a client.
ssl encryption	Specifies the encryption algorithms that the SSL/TLS protocol uses.
ssl server-version	Specifies the SSL/TLS protocol version the ASA uses when acting as a server.

sso-server

To create a Single Sign-On (SSO) server for ASA user authentication, use the **sso-server** command in webvpn configuration mode. With this command, you must specify the SSO server type.

To remove an SSO server, use the **no** form of this command.

sso-server *name* **type** [*siteminder* | *saml-v1.1-post*]

no sso-server *name*

Note This command is required for SSO authentication.

Syntax Description

name	Specifies the name of the SSO server. Minimum of 4 characters and maximum of 31 characters.
saml-v1.1-post	Specifies that the ASA SSO server being configured is a SAML, Version 1.1, SSO server of the POST type.
siteminder	Specifies that the ASA SSO server being configured is a Computer Associates SiteMinder SSO server.
type	Specifies the type of SSO server. SiteMinder and SAML-V1.1-POST are the only types available.

Defaults

There is no default value or behavior.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

Single sign-on support, available only for WebVPN, lets users access different secure services on different servers without entering a username and password more than once. The **sso-server** command lets you create an SSO server.

In the authentication, the ASA acts as a proxy for the WebVPN user to the SSO server. The ASA currently supports the SiteMinder SSO server (formerly Netegrity SiteMinder) and the SAML POST-type SSO server. Currently, the available arguments for the type option are restricted to *siteminder* or *saml-V1.1-post*.

Examples

The following example, entered in webvpn configuration mode, creates a SiteMinder-type SSO server named “example1”:

```
hostname(config)# webvpn
hostname(config-webvpn)# sso-server example1 type siteminder
hostname(config-webvpn-sso-siteminder)#
```

The following example, entered in webvpn configuration mode, creates a SAML, Version 1.1, POST-type SSO server named “example2”:

```
hostname(config)# webvpn
hostname(config-webvpn)# sso-server example2 type saml-v1.1-post
hostname(config-webvpn-sso-saml)#
```

Related Commands

Command	Description
assertion-consumer-url	Identifies the URL for the SAML-type SSO assertion consumer service.
issuer	Specifies the SAML-type SSO server’s security device name.
max-retry-attempts	Configures the number of times the ASA retries a failed SSO authentication attempt.
policy-server-secret	Creates a secret key used to encrypt authentication requests to a SiteMinder SSO server.
request-timeout	Specifies the number of seconds before a failed SSO authentication attempt times out.
show webvpn sso-server	Displays the operating statistics for an SSO server.
test sso-server	Tests an SSO server with a trial authentication request.
trustpoint	Specifies a trustpoint name that contains the certificate to use to sign the SAML-type browser assertion
web-agent-url	Specifies the SSO server URL to which the ASA makes SiteMinder SSO authentication requests.

sso-server value (group-policy webvpn)

To assign an SSO server to a group policy, use the **sso-server value** command in webvpn configuration mode available in group-policy configuration mode.

To remove the assignment and use the default policy, use the **no** form of this command.

To prevent inheriting the default policy, use the **sso-server none** command.

sso-server {**value** *name* | **none**}

[**no**] **sso-server value** *name*

Syntax Description

name	Specifies the name of the SSO server being assigned to the group policy.

Defaults

The default policy assigned to the group is DfltGrpPolicy.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

The **sso-server value** command, when entered in group-policy webvpn mode, lets you assign an SSO server to a group policy.

Single sign-on support, available only for WebVPN, lets users access different secure services on different servers without entering a username and password more than once. The ASA currently supports the SiteMinder-type of SSO server and the SAML POST-type SSO server.

This command applies to both types of SSO Servers.

Note Enter the same command, **sso-server value**, in username-webvpn configuration mode to assign SSO servers to user policies.

Examples

The following example commands create the group policy my-sso-grp-pol and assigns it to the SSO server named example:

```
hostname(config)# group-policy my-sso-grp-pol internal
```

```
hostname(config)# group-policy my-sso-grp-pol attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# sso-server value example
hostname(config-group-webvpn)#
```

Related Commands

Command	Description
policy-server-secret	Creates a secret key used to encrypt authentication requests to a SiteMinder SSO server.
show webvpn sso-server	Displays the operating statistics for all SSO servers configured on the security device.
sso-server	Creates a single sign-on server.
sso-server value (**username webvpn**)	Assigns an SSO server to a user policy.
web-agent-url	Specifies the SSO server URL to which the ASA makes SiteMinder-type SSO authentication requests.

sso-server value (username webvpn)

To assign an SSO server to a user policy, use the **sso-server value** command in webvpn configuration mode available in username configuration mode.

To remove an SSO server assignment for a user, use the **no** form of this command.

When a user policy inherits an unwanted SSO server assignment from a group policy, use the **sso-server none** command to remove the assignment.

sso-server {**value** *name* | **none**}

[**no**] **sso-server value** *name*

Syntax Description

name	Specifies the name of the SSO server being assigned to the user policy.

Defaults

The default is for the user policy to use the SSO server assignment in the group policy.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Username webvpn configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

Single sign-on support, available only for WebVPN, lets users access different secure services on different servers without entering a username and password more than once. The ASA currently supports the SiteMinder-type of SSO server and the SAML POST-type SSO server.

This command applies to both types of SSO Servers.

The **sso-server value** command lets you assign an SSO server to a user policy.

Note Enter the same command, **sso-server value**, in group-webvpn configuration mode to assign SSO servers to group policies.

Examples

The following example commands assign the SSO server named my-sso-server to the user policy for a WebVPN user named Anyuser:

```
hostname(config)# username Anyuser attributes
hostname(config-username)# webvpn
hostname(config-username-webvpn)# sso-server value my-sso-server
```

```
hostname(config-username-webvpn)#
```

Related Commands

Command	Description
policy-server-secret	Creates a secret key used to encrypt authentication requests to a SiteMinder SSO server.
show webvpn sso-server	Displays the operating statistics for all SSO servers configured on the security device.
sso-server	Creates a single sign-on server.
sso-server value (config-group-webvpn)	Assigns an SSO server to a group policy.
web-agent-url	Specifies the SSO server URL to which the ASA makes SiteMinder SSO authentication requests.

start-url

To enter the URL at which to retrieve an optional pre-login cookie, use the **start-url** command in aaa-server-host configuration mode. This is an SSO with HTTP Forms command.

start-url *string*

Note To configure SSO with the HTTP protocol correctly, you must have a thorough working knowledge of authentication and HTTP protocol exchanges.

Syntax Description

string	The URL for an SSO server. The maximum URL length is 1024 characters.

Defaults

There is no default value or behavior.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Aaa-server-host configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

The WebVPN server of the ASA can use an HTTP POST request to submit a single sign-on authentication request to an authenticating web server. The authenticating web server may execute a pre-login sequence by sending a Set-Cookie header along with the login page content. You can discover this by connecting directly to the authenticating web server's login page with your browser. If the web server sets a cookie when the login page loads and if this cookie is relevant for the following login session, you must use the **start-url** command to enter the URL at which the cookie is retrieved. The actual login sequence starts after the pre-login cookie sequence with the form submission to the authenticating web server.

Note The **start-url** command is only required in the presence of the pre-login cookie exchange.

Examples

The following example, entered in aaa-server host configuration mode, specifies a URL for retrieving the pre-login cookie of https://example.com/east/Area.do?Page-Grp1:

```
hostname(config)# aaa-server testgrp1 (inside) host example.com
hostname(config-aaa-server-host)# start-url https://example.com/east/Area.do?Page=Grp1
hostname(config-aaa-server-host)#
```

Related Commands

Command	Description
action-uri	Specifies a web server URI to receive a username and password for single sign-on authentication.
auth-cookie-name	Specifies a name for the authentication cookie.
hidden-parameter	Creates hidden parameters for exchange with the authenticating web server.
password-parameter	Specifies the name of the HTTP POST request parameter in which a user password must be submitted for SSO authentication.
user-parameter	Specifies the name of the HTTP POST request parameter in which a username must be submitted for SSO authentication.

state-checking

To enforce state checking for H.323, use the **state-checking** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

state-checking [h225 | ras]

no state-checking [h225 | ras]

Syntax Description

h225	Enforces state checking for H.225.
ras	Enforces state checking for RAS.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to enforce state checking for RAS on an H.323 call:

```
hostname(config)# policy-map type inspect h323 h323_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# state-checking ras
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

strict-header-validation

To enable strict validation of the header fields in the SIP messages according to RFC 3261, use the **strict-header-validation** command in parameters configuration mode. Parameters configuration mode is accessible from policy map configuration mode. To disable this feature, use the **no** form of this command.

strict-header-validation action {**drop** | **drop-connection** | **reset** | **log**} [**log**]

no strict-header-validation action {**drop** | **drop-connection** | **reset** | **log**} [**log**]

Syntax Description

drop	Drops the packet if validation occurs.
drop-connection	Drops the connection of a violation occurs.
reset	Resets the connection of a violation occurs.
log	Specifies standalone or additional log in case of violation. It can be associated to any of the actions.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to enable strict validation of SIP header fields in a SIP inspection policy map:

```
hostname(config)# policy-map type inspect sip sip_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# strict-header-validation action log
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.

Command	Description
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

strict-http

To allow forwarding of non-compliant HTTP traffic, use the **strict-http** command in HTTP map configuration mode, which is accessible using the **http-map** command. To reset this feature to its default behavior, use the **no** form of the command.

strict-http action {**allow** | **reset** | **drop**} [**log**]

no **strict-http action** {**allow** | **reset** | **drop**} [**log**]

Syntax Description

action	The action taken when a message fails this command inspection.
allow	Allows the message.
drop	Closes the connection.
log	(Optional) Generate a syslog.
reset	Closes the connection with a TCP reset message to client and server.

Defaults

This command is enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
HTTP map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Although strict HTTP inspection cannot be disabled, the **strict-http action allow** command causes the ASA to allow forwarding of non-compliant HTTP traffic. This command overrides the default behavior, which is to deny forwarding of non-compliant HTTP traffic.

Examples

The following example allows forwarding of non-compliant HTTP traffic:

```
hostname(config)# http-map inbound_http
hostname(config-http-map)# strict-http allow
hostname(config-http-map)#
```

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
debug appfw	Displays detailed information about traffic associated with enhanced HTTP inspection.
http-map	Defines an HTTP map for configuring enhanced HTTP inspection.
inspect http	Applies a specific HTTP map to use for application inspection.
policy-map	Associates a class map with specific security actions.

strip-group

This command applies only to usernames received in the form user@realm. A realm is an administrative domain appended to a username with the "@" delimiter (juser@abc).

To enable or disable strip-group processing, use the **strip-group** command in tunnel-group general-attributes mode. The ASA selects the tunnel group for IPsec connections by obtaining the group name from the username presented by the VPN client. When strip-group processing is enabled, the ASA sends only the user part of the username for authorization/authentication. Otherwise (if disabled), the ASA sends the entire username including the realm.

To disable strip-group processing, use the **no** form of this command.

strip-group

no strip-group

Syntax Description

This command has no arguments or keywords.

Defaults

The default setting for this command is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tunnel-group general attributes configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You can apply this attribute only to the IPsec remote access tunnel-type.

Note Because of a limitation of MSCHAPv2, you cannot perform tunnel group switching when MSCHAPv2 is used for PPP authentication. The hash computation during MSCHAPv2 is bound to the username string (such as user + delimit + group).

Examples

The following example configures a remote access tunnel group named "remotegrp" for type IPsec remote access, then enters general configuration mode, sets the tunnel group named "remotegrp" as the default group policy, and then enables strip group for that tunnel group:

```
hostname(config)# tunnel-group remotegrp type IPsec_ra
```

```
hostname(config)# tunnel-group remotegrp general
hostname(config-tunnel-general)# default-group-policy remotegrp
hostname(config-tunnel-general)# strip-group
```

Related Commands

Command	Description
clear-configure tunnel-group	Clears all configured tunnel groups.
group-delimiter	Enables group-name parsing and specifies the delimiter to be used when parsing group names from the user names that are received when tunnels are being negotiated.
show running-config tunnel group	Shows the tunnel group configuration for all tunnel groups or for a particular tunnel group.
tunnel-group general-attributes	Specifies the general attributes for the named tunnel-group.

strip-realm

To enable or disable strip-realm processing, use the **strip-realm** command in tunnel-group general-attributes configuration mode. Strip-realm processing removes the realm from the username when sending the username to the authentication or authorization server. A realm is an administrative domain appended to a username with the @ delimiter (username@realm). If the command is enabled, the ASA sends only the user part of the username authorization/authentication. Otherwise, the ASA sends the entire username.

To disable strip-realm processing, use the **no** form of this command.

strip-realm

no strip-realm

Syntax Description

This command has no arguments or keywords.

Defaults

The default setting for this command is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tunnel-group general attributes configuration	•	—	•	—	—

Command History

Release	Modification
7.0.1	This command was introduced.

Usage Guidelines

You can apply this attribute only to the IPsec remote access tunnel-type.

Examples

The following example configures a remote access tunnel group named “remotegrp” for type IPsec remote access, then enters general configuration mode, sets the tunnel group named “remotegrp” as the default group policy, and then enables strip realm for that tunnel group:

```
hostname(config)# tunnel-group remotegrp type IPsec_ra
hostname(config)# tunnel-group remotegrp general
hostname(config-tunnel-general)# default-group-policy remotegrp
hostname(config-tunnel-general)# strip-real
```

storage-key

To specify a storage key to protect the date stored between sessions, use the **storage-key** command in group-policy webvpn configuration mode. To remove this command from the configuration, use the **no** version of this command.

storage- key { **none** | **value** *string*}

no storage-key

Syntax Description

string	Specifies a string to use as the value of the storage key. This string can be up to 64 characters long.

Defaults

The default is **none**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy webvpn configuration mode	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

While you can use any character except spaces in the storage key value, we recommend using only the standard alphanumeric character set: 0 through 9 and a through z.

Examples

The following example sets the storage key to the value abc123:

```
hostname(config)# group-policy test attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# storage-key value abc123
```

Related Commands

Command	Description
storage-objects	Configures storage objects for the data stored between sessions.

storage-objects

To specify which storage objects to use for the data stored between sessions, use the **storage-objects** command in group-policy webvpn configuration mode. To remove this command from the configuration, use the **no** version of this command.

storage- objects { **none** | **value** *string*}

no storage-objects

Syntax Description

string	Specifies the name of the storage objects. This string can be up to 64 characters long.

Defaults

The default is **none**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy webvpn configuration mode	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

While you can use any character except spaces and commas in the storage object name, we recommend using only the standard alphanumeric character set: 0 through 9 and a through z. Use a comma, with no space, to separate the names of storage objects in the string.

Examples

The following example sets the storage object names to cookies and xyz456:

```
hostname(config)# group-policy test attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# storage-object value cookies,xyz456
```

Related Commands

Command	Description
storage-key	Configures storage key to use for the data stored between sessions.
user-storage	Configures a location for storing user data between sessions

CHAPTER 63

subject-name through sysopt radius ignore-secret Commands

subject-name (crypto ca certificate map)

To indicate that rule entry is applied to the subject DN of the IPsec peer certificate, use the **subject-name** command in crypto ca certificate map configuration mode. To remove an subject-name, use the **no** form of the command.

subject-name [**attr** *tag* **eq | ne |co | nc** *string*]

no subject-name [**attr** *tag* **eq | ne |co | nc** *string*]

Syntax Description

attr *tag*	Indicates that only the specified attribute value from the certificate DN will be compared to the rule entry string. The tag values are as follows: DNQ = DN qualifier GENQ = Generational qualifier I = Initials GN = Given name N = Name SN = Surname IP = IP address SER = Serial number UNAME = Unstructured name EA = Email address T = Title O = Organization Name L = Locality SP = State/Province C = Country OU = Organizational unit CN = Common name
co	Specifies that the rule entry string must be a substring in the DN string or indicated attribute.
eq	Specifies that the DN string or indicated attribute must match the entire rule string.
nc	Specifies that the rule entry string must not be a substring in theDN string or indicated attribute.
ne	Specifies that the DN string or indicated attribute must not match the entire rule string.
string	Specifies the value to be matched.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Crypto ca certificate map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example enters the ca certificate map configuration mode for certificate map 1 and creates a rule entry indicating that the Organization attribute of the certificate subject name must be equal to Central:

```
hostname(config)# crypto ca certificate map 1
hostname(ca-certificate-map)# subject-name attr o eq central
hostname(ca-certificate-map)# exit
```

Related Commands

Command	Description
crypto ca certificate map	Enters ca certificate map configurationmode.
issuer-name	Identifies the DN from the CA certificate that is to be compared to the rule entry string.
tunnel-group-map	Associates the certificate map entries created using the **crypto ca certificate map** command with tunnel groups.

subject-name (crypto ca trustpoint)

To include the indicated subject DN in the certificate during enrollment, use the **subject-name** command in crypto ca trustpoint configuration mode. This is the person or system that uses the certificate. To restore the default setting, use the **no** form of the command.

subject-name *X.500_name*

no subject-name

Syntax Description

X.500_name	Defines the X.500 distinguished name. Use commas to separate attribute-value pairs. Insert quotation marks around any value that contains commas or spaces. For example: **cn=crl,ou=certs,o="cisco systems, inc.",c=US**. The maximum length is 500 characters.

Defaults

The default setting is not to include the subject name.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Crypto ca trustpoint configuration	•	•	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example enters crypto ca trustpoint configuration mode for trustpoint central, and sets up automatic enrollment at the URL https//:frog.example.com and includes the subject DN OU certs in the enrollment request for trustpoint central:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# enrollment url http://frog.example.com/
hostname(ca-trustpoint)# subject-name ou=certs
hostname(ca-trustpoint)#
```

Related Commands

Command	Description
crypto ca trustpoint	Enters trustpoint configuration mode.
default enrollment	Returns enrollment parameters to their defaults.
enrollment url	Specifies the URL for enrolling with a CA.

subject-name-default

To specify a generic subject-name distinguished name (DN) to be appended to the username in all user certificates issued by the local CA server, use the **subject-name-default** command in CA server configuration mode. To reset the subject-name DN to the default value, use the **no** form of this command.

subject-name-default *dn*

no subject-name-default

Syntax Description

dn	Specifies the generic subject-name DN included with a username in all user certificates issued by the local CA server. Supported DN attributes are cn (common name), ou (organizational unit), ol (organization locality), st (state), ea (e-mail address), c (company), t (title), and sn (surname). Use commas to separate attribute-value pairs. Insert quotation marks around any value that contains a comma. The *dn* can be up to 500 characters.

Defaults

This command is not part of the default configuration. This command specifies the default DN in the certificate. The ASA ignores this command if the user entry has a DN.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
CA server configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

The **subject-name-default** command specifies a common, generic DN to be used with a username to form a subject name for issued certificates. The *dn* value cn=username is sufficient for this purpose. This command eliminates the need to define a subject-name DN specifically for each user. The DN field is optional when a user is added using the **crypto ca server user-db add** dn *dn* command.

The ASA uses this command only when issuing certificates if a user entry does not specify a DN.

Examples

The following example specifies a DN:

```
hostname(config)# crypto ca server
hostname(config-ca-server)# subject-name-default cn=cisco,cn=example_corp,ou=eng,st=ma,
c="cisco systems, inc."
hostname(config-ca-server)#
```

Related Commands

Command	Description
crypto ca server	Provides access to CA Server Configuration mode CLI command set, which allows you to configure and manage a local CA.
issuer-name	Specifies the subject-name DN of the certificate authority certificate.
keysize	Specifies the size of the public and private keys generated at user certificate enrollment.
lifetime	Specifies the lifetime of the CA certificate, issued certificates, or the CRL.

subnet

To configure a subnet for a network object, use the **subnet** command in object configuration mode. Use the **no** form of this command to remove the object from the configuration.

subnet {*ipv4_net_addr net_mask* | *ipv6_prefix*/*mask*}

no subnet {*ipv4_net_addr net_mask* | *ipv6_prefix*/*mask*}

Syntax Description

ipv4_net_addr	Specifies the IPv4 network address.
net_mask	Specifies the subnet mask.
ipv6_prefix/*mask*	Specifies the IPv6 prefix and mask.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Object network configuration	•	•	•	•	—

Command History

Release	Modification
8.3(1)	This command was introduced.

Usage Guidelines

If you configure an existing network object with a different IP address, the new configuration will replace the existing configuration.

Examples

The following example shows how to create a subnet network object:

```
hostname (config)# object network OBJECT_SUBNET
hostname (config-network-object)# subnet 10.1.1.0 255.255.255.0
```

Related Commands

Command	Description
clear configure object	Clears all objects created.
description	Adds a description to the network object.
fqdn	Specifies a fully-qualified domain name network object.
host	Specifies a host network object.

Command	Description
nat	Enables NAT for the network object.
object network	Creates a network object.
object-group network	Creates a network object group.
range	Specifies a range of addresses for the network object.
show running-config object network	Shows the network object configuration.

summary-address (EIGRP)

To configure a summary for EIGRP on a specific interface, use the **summary-address** command in interface configuration mode. To remove the summary address, use the **no** form of this command.

summary-address *as-number addr mask* [*admin-distance*]

no summary-address *as-number addr mask*

Syntax Description

as-number	The autonomous system number. This must be the same as the autonomous system number of your EIGRP routing process.
addr	The summary IP address.
mask	The subnet mask to apply to the IP address.
admin-distance	(Optional) The administrative distance of the summary route. Valid values are from 0 to 255. If not specified, the default value is 5.

Defaults

The defaults are as follows:

- EIGRP automatically summarizes routes to the network level, even for a single host route.
- The administrative distance of EIGRP summary routes is 5.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	—	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

By default, EIGRP summarizes subnet routes to the network level. Use the **no auto-summary** command to disable automatic route summarization. Using the **summary-address** command lets you manually define subnet route summaries on a per-interface basis.

Examples

The following example configures route summarization with a **tag** set to 3:

```
hostname(config-router)# summary-address 1.1.0.0 255.255.0.0
hostname(config-router)#
```

The following example shows how to use the **no** form of the **summary-address** command with an option to set that option back to the default value. In this example, the **tag** value, set to 3 in the previous example, is removed from the **summary-address** command.

```
hostname(config-router)# no summary-address 1.1.0.0 255.255.0.0
hostname(config-router)#
```

The following example removes the **summary-address** command from the configuration:

```
hostname(config-router)# no summary-address 1.1.0.0 255.255.0.0
hostname(config-router)#
```

Related Commands

Command	Description
auto-summary	Automatically creates summary addresses for the EIGRP routing process.

summary-address (OSPFv2)

To create aggregate addresses for OSPF, use the **summary-address** command in router configuration mode. To remove the summary address or specific summary address options, use the **no** form of this command.

summary-address *addr mask* [**not-advertise**] [**tag** *tag_value*]

no summary-address *addr mask* [**not-advertise**] [**tag** *tag_value*]

Syntax Description

addr	Value of the summary address that is designated for a range of addresses.
mask	IP subnet mask that is used for the summary route.
not-advertise	(Optional) Suppresses routes that match the specified prefix/mask pair.
tag *tag_value*	(Optional) A 32-bit decimal value attached to each external route. This value is not used by OSPF itself. It may be used to communicate information between ASBRs. If none is specified, then the remote autonomous system number is used for routes from BGP and EGP; for other protocols, zero (0) is used. Valid values range from 0 to 4294967295.

Defaults

The defaults are as follows:

- *tag_value* is 0.
- Routes that match the specified prefix/mask pair are not suppressed.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	•	—

Command History

Release	Modification
Preexisting	This command was preexisting.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

Routes learned from other routing protocols can be summarized. Using this command for OSPF causes an OSPF Autonomous System Boundary Router (ASBR) to advertise one external route as an aggregate for all redistributed routes that are covered by the address. This command summarizes only routes from other routing protocols that are being redistributed into OSPF. Use the **area range** command for route summarization between OSPF areas.

To remove a **summary-address** command from the configuration, use the no form of the command without specifying any of the optional keywords or arguments. To remove an option from a summary command in the configuration, use the **no** form of the command with the options that you want removed. See the "Examples" section for more information.

Examples

The following example configures route summarization with a **tag** set to 3:

```
hostname(config-router)# summary-address 1.1.0.0 255.255.0.0 tag 3
hostname(config-router)#
```

The following example shows how to use the **no** form of the **summary-address** command with an option to set that option back to the default value. In this example, the **tag** value, set to 3 in the previous example, is removed from the **summary-address** command.

```
hostname(config-router)# no summary-address 1.1.0.0 255.255.0.0 tag 3
hostname(config-router)#
```

The following example removes the **summary-address** command from the configuration:

```
hostname(config-router)# no summary-address 1.1.0.0 255.255.0.0
hostname(config-router)#
```

Related Commands

Command	Description
area range	Consolidates and summarizes routes at an area boundary.
router ospf	Enters router configuration mode.
show ospf summary-address	Displays the summary address settings for each OSPF routing process.

summary-prefix (OSPFv3)

To configure an IPv6 summary prefix, use the **summary-prefix** command in IPv6 router configuration mode. To restore the default, use the **no** form of this command.

summary-prefix *prefix* [**not-advertise**] [**tag** *tag_value*]

no summary-prefix *prefix* [**not-advertise**] [**tag** *tag_value*]

Syntax Description

not-advertise	(Optional) Suppresses routes that match the specified prefix and mask pair. This keyword applies to OSPFv3 only.
prefix	Specifies the IPv6 prefix for the destination.
tag *tag_value*	(Optional) Specifies the tag value that can be used as a match value for controlling redistribution by means of route maps. This keyword applies to OSPFv3 only.

Defaults

The defaults are as follows:

- *tag_value* is 0.
- Routes that match the specified prefix and mask pair are not suppressed.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
IPv6 router configuration	•	—	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Use this command to configure an IPv6 summary prefix.

Examples

In the following example, the summary prefix FECO::/24 includes addresses FECO::/1 through FECO::/24. Only the address FECO::/24 is advertised in an external LSA:

```
hostname(config-if)# ipv6 router ospf 1
hostname(config-router)# router-id 172.16.3.3
hostname(config-router)# summary-prefix FECO::/24
hostname(config-router)# redistribute static
```

Related Commands

Command	Description
ipv6 router ospf	Enters router configuration mode for OSPFv3.
redistribute	Redistributes IPv6 routes from one OSPFv3 routing domain into another OSPFv3 routing domain.

sunrpc-server

To create entries in the SunRPC services table, use the **sunrpc-server** command in global configuration mode. To remove SunRPC services table entries from the configuration, use the **no** form of this command.

sunrpc-server *ifc_name ip_addr mask* **service** *service_type* **protocol** [**tcp** | **udp**] **port** *port* **[-** *port* **]** **timeout** *hh:mm:ss*

no sunrpc-server *ifc_name ip_addr mask* **service** *service_type* **protocol** [**tcp** | **udp**] **port** *port* [*- port]* **timeout** *hh:mm:ss*

no sunrpc-server active service *service_type* **server** *ip_addr*

Syntax Description

ifc_name	Server interface name.
ip_addr	SunRPC server IP address.
mask	Network mask.
port *port* [- *port*]	Specifies the SunRPC protocol port range.
port- *port*	(Optional) Specifies the SunRPC protocol port range.
protocol tcp	Specifies the SunRPC transport protocol.
protocol udp	Specifies the SunRPC transport protocol.
service	Specifies a service.
service_type	Sets the SunRPC service program number as specified in the **sunrpcinfo** command.
timeout *hh:mm:ss*	Specifies the timeout idle time after which the access for the SunRPC service traffic is closed.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The SunRPC services table is used to allow SunRPC traffic through the ASA based on an established SunRPC session for the duration specified by the timeout.

Examples

The following example shows how to create an SunRPC services table:

```
hostname(config)# sunrpc-server outside 10.0.0.1 255.0.0.0 service 100003 protocol TCP
port 111 timeout 0:11:00
hostname(config)# sunrpc-server outside 10.0.0.1 255.0.0.0 service 100005 protocol TCP
port 111 timeout 0:11:00
```

Related Commands

Command	Description
clear configure sunrpc-server	Clears the Sun remote processor call services from the ASA.
show running-config sunrpc-server	Displays the information about the SunRPC configuration.

support-user-cert-validation

To validate a remote user certificate based on the current trustpoint, provided that this trustpoint is authenticated to the CA that issued the remote certificate, use the **support-user-cert-validation** command in crypto ca trustpoint configuration mode. To restore the default setting, use the **no** form of the command.

support-user-cert-validation

no support-user-cert-validation

Syntax Description

This command has no arguments or keywords.

Defaults

The default setting is to support user certificate validation.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Crypto ca trustpoint configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The ASA can have two trustpoints with the same CA resulting in two different identity certificates from the same CA. This option is automatically disabled if the trustpoint is authenticated to a CA that is already associated with another trustpoint that has enabled this feature. This prevents ambiguity in the choice of path-validation parameters. If the user attempts to activate this feature on a trustpoint that has been authenticated to a CA already associated with another trustpoint that has enabled this feature, the action is not permitted. No two trustpoints can have this setting enabled and be authenticated to the same CA.

Examples

The following example enters crypto ca trustpoint configuration mode for trustpoint central, and enables the trustpoint central to accept user validation:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# support-user-cert-validation
hostname(ca-trustpoint)#
```

Related Commands

Command	Description
crypto ca trustpoint	Enters trustpoint configuration mode.
default enrollment	Returns enrollment parameters to their defaults.

sw-module module password-reset

To reset the password on the software module to the default value, "cisco," use the **sw-module module password-reset** command in privileged EXEC mode.

sw-module module *id* **password-reset**

Syntax Description

id	Specifies the module ID, either **cxsc** or **ips**.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
8.6(1)	This command was introduced.
9.1(1)	We added support for the ASA CX software module by adding the **cxsc** keyword.

Usage Guidelines

After resetting the password, you should change it to a unique value using the module application. Resetting the module password causes the module to reboot. Services are not available while the module is rebooting, which may take several minutes. You can run the **show module** command to monitor the module state.

The command always prompts for confirmation. If the command succeeds, no other output appears. If the command fails, an error message appears that explains why the failure occurred.

This command is only valid when the module is in the Up state.

The default password depends on the module:

- ASA IPS—The default password is **cisco** for user cisco.
- ASA CX—The default password is **Admin123** for user admin.

Examples

The following example resets a password on the IPS module:

```
hostname# sw-module module ips password-reset
Reset the password on module ips? [confirm] y
```

Related Commands

Command	Description
sw-module module recover	Recovers a module by loading a recovery image from disk.
sw-module module reload	Reloads the module software.
sw-module module reset	Shuts down and reloads the module.
sw-module module shutdown	Shuts down the module software in preparation for being powered off without losing configuration data.
show module	Shows module information.

sw-module module recover

To load a recovery software image from disk for a software module, or to configure the image location, use the **sw-module module recover** command in privileged EXEC mode. You might need to recover a module using this command if, for example, the module is unable to load the current image.

sw-module module *id* **recover** {**boot** | **stop** | **configure image** *path*}

Syntax Description

id	Specifies the module ID, either **cxsc** or **ips**.
boot	Initiates recovery of this module and downloads a recovery image according to the **configure** settings. The module then reboots from the new image.
configure image *path*	Configures the new image location on the local disk, for example, disk0:image2.
stop	Stops the recovery action. The module boots from the original image. You must enter this command within 30 seconds after starting recovery using the **sw-module module** *id* **recover boot** command. If you issue the **stop** command after this period, it might cause unexpected results, such as the module becoming unresponsive.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
8.6(1)	This command was introduced.
9.1(1)	We added support for the ASA CX software module by adding the **cxsc** keyword.

Usage Guidelines

If the module suffers a failure, and the module application image cannot run, you can reinstall a new image on the module from the local disk.

This command is only available when the module is in the Up, Down, Unresponsive, or Recovery state. See the **show module** command for state information. If the module is not in an Up state, the ASA will forcefully shutdown the module. A forced shutdown will destroy the old module disk image, including any configuration, and should only be used as a disaster recovery mechanism.

You can view the recovery configuration using the **show module** *id* **recover** command.

Note Do not use the **upgrade** command within the module software to install the image.

Examples

The following example sets the module to download an image from disk0:image2:

```
hostname# sw-module module ips recover configure image disk0:image2
```

The following example recovers the module:

```
hostname# sw-module module ips recover boot
The module in slot ips will be recovered.  This may
erase all configuration and all data on that device and
attempt to download a new image for it.
Recover module in slot ips? [confirm]
```

Related Commands

Command	Description
debug module-boot	Shows debug messages about the module booting process.
sw-module module reset	Shuts down a module and performs a reset.
sw-module module reload	Reloads the module software.
sw-module module shutdown	Shuts down the module software in preparation for being powered off without losing configuration data.
show module	Shows module information.

sw-module module reload

To reload module software for a software module, use the **sw-module module reload** command in privileged EXEC mode.

sw-module module *id* **reload**

Syntax Description

id	Specifies the module ID, either **cxsc** or **ips**.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
8.6(1)	This command was introduced.
9.1(1)	We added support for the ASA CX software module by adding the **cxsc** keyword.

Usage Guidelines

This command differs from the **sw-module module reset** command, which also performs a reset before reloading the module.

This command is only valid when the module status is Up. See the **show module** command for state information.

Examples

The following example reloads the IPS module:

```
hostname# sw-module module ips reload
Reload module in slot ips? [confirm] y
Reload issued for module in slot ips
%XXX-5-505002: Module in slot ips is reloading.  Please wait...
%XXX-5-505006: Module in slot ips is Up.
```

Related Commands

Command	Description
debug module-boot	Shows debug messages about the module booting process.
sw-module module recover	Recovers a module by loading a recovery image from disk.
sw-module module reset	Shuts down a module and performs a reset.
sw-module module shutdown	Shuts down the module software in preparation for being powered off without losing configuration data.
show module	Shows module information.

sw-module module reset

To reset the module and then reload the module software, use the **sw-module module reset** command in privileged EXEC mode.

sw-module module *id* **reset**

Syntax Description

id	Specifies the module ID, either **cxsc** or **ips**.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
8.6(1)	This command was introduced.
9.1(1)	We added support for the ASA CX software module by adding the **cxsc** keyword.

Usage Guidelines

When the module is in an Up state, the **sw-module module reset** command prompts you to shut down the software before resetting.

You can recover a module using the **sw-module module recover** command. If you enter the **sw-module module reset** command while the module is in a Recover state, the module does not interrupt the recovery process. The **sw-module module reset** command performs a reset of the module, and the module recovery continues after the reset. You might want to reset the module during recovery if the module hangs; a reset might resolve the issue.

This command differs from the **sw-module module reload** command, which only reloads the software and does not perform a reset.

This command is only valid when the module status is Up, Down, Unresponsive, or Recover. See the **show module** command for state information.

Examples

The following example resets an IPS module that is in the Up state:

```
hostname# sw-module module ips reset
The module in slot ips should be shut down before
resetting it or loss of configuration may occur.
Reset module in slot ips? [confirm] y
```

```
Reset issued for module in slot ips
%XXX-5-505001: Module in slot ips is shutting down.  Please wait...
%XXX-5-505004: Module in slot ips shutdown is complete.
%XXX-5-505003: Module in slot ips is resetting.  Please wait...
%XXX-5-505006: Module in slot ips is Up.
```

Related Commands

Command	Description
debug module-boot	Shows debug messages about the module booting process.
sw-module module recover	Recovers a module by loading a recovery image from disk.
sw-module module reload	Reloads the module software.
sw-module module shutdown	Shuts down the module software in preparation for being powered off without losing configuration data.
show module	Shows module information.

sw-module module shutdown

To shut down the module software, use the **sw-module module shutdown** command in privileged EXEC mode.

sw-module module *id* **shutdown**

Syntax Description

id	Specifies the module ID, either **cxsc** or **ips**.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
8.6(1)	This command was introduced.
9.1(1)	We added support for the ASA CX software module by adding the **cxsc** keyword.

Usage Guidelines

Shutting down the module software prepares the module to be safely powered off without losing configuration data.

This command is only valid when the module status is Up or Unresponsive. See the **show module** command for state information.

Examples

The following example shuts down an IPS module:

```
hostname# sw-module module ips shutdown
Shutdown module in slot ips? [confirm] y
Shutdown issued for module in slot ips
hostname#
%XXX-5-505001: Module in slot ips is shutting down.  Please wait...
%XXX-5-505004: Module in slot ips shutdown is complete.
```

Related Commands

Command	Description
debug module-boot	Shows debugging messages about the module booting process.
sw-module module recover	Recovers a module by loading a recovery image from disk.
sw-module module reload	Reloads the module software.
sw-module module reset	Shuts down a module and performs a reset.
show module	Shows module information.

sw-module module uninstall

To uninstall a software module image and associated configuration, use the **sw-module module uninstall** command in privileged EXEC mode.

sw-module module *id* **uninstall**

Syntax Description

id	Specifies the module ID, either **cxsc** or **ips**.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
8.6(1)	We introduced this command.
9.1(1)	We added support for the ASA CX software module by adding the **cxsc** keyword.

Usage Guidelines

This command permanently uninstalls the software module image and associated configuration.

Examples

The following example uninstalls the IPS module image and configuration:

```
hostname# sw-module module ips uninstall
Module ips will be uninstalled. This will completely remove the
disk image associated with the sw-module including any configuration
that existed within it.

Uninstall module <id>? [confirm]
```

Related Commands

Command	Description
debug module-boot	Shows debugging messages about the module booting process.
sw-module module recover	Recovers a module by loading a recovery image from disk.
sw-module module reload	Reloads the module software.

Command	Description
sw-module module reset	Shuts down a module and performs a reset.
show module	Shows module information.

switchport access vlan

For models with a built-in switch, such as the ASA 5505 adaptive security appliance, use the **switchport access vlan** command in interface configuration mode to assign a switch port to a VLAN.

switchport access vlan *number*

no switchport access vlan *number*

Syntax Description

vlan *number*	Specifies the VLAN ID to which you want to assign this switch port. The VLAN ID is between 1 and 4090.

Defaults

By default, all switch ports are assigned to VLAN 1.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

In transparent firewall mode, you can configure two active VLANs in the ASA 5505 adaptive security appliance Base license and three active VLANs in the Security Plus license, one of which must be for failover.

In routed mode, you can configure up to three active VLANs in the ASA 5505 adaptive security appliance Base license, and up to 20 active VLANs with the Security Plus license.

An active VLAN is a VLAN with a **nameif** command configured.

You can assign one or more physical interfaces to each VLAN using the **switchport access vlan** command. By default, the VLAN mode of the interface is to be an access port (one VLAN associated with the interface). If you want to create a trunk port to pass multiple VLANs on the interface, use the **switchport mode access trunk** command to change the mode to trunk mode, and then use the **switchport trunk allowed vlan** command.

Examples

The following example assigns five physical interfaces to three VLAN interfaces:

```
hostname(config-if)# interface ethernet 0/0
hostname(config-if)# switchport access vlan 100
hostname(config-if)# no shutdown
```

```
hostname(config-if)# interface ethernet 0/1
hostname(config-if)# switchport access vlan 200
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/2
hostname(config-if)# switchport access vlan 200
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/3
hostname(config-if)# switchport access vlan 200
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/4
hostname(config-if)# switchport access vlan 300
hostname(config-if)# no shutdown

...
```

Related Commands

Command	Description
interface	Configures an interface and enters interface configuration mode.
show running-config interface	Shows the interface configuration in the running configuration.
switchport mode	Sets the VLAN mode to be access or trunk.
switchport protected	Prevents a switch port from communicating with other switch ports on the same VLAN for extra security.
switchport trunk allowed vlan	Assigns VLANs to a trunk port.

switchport mode

For models with a built-in switch, such as the ASA 5505 adaptive security appliance, use the **switchport mode** command in interface configuration mode to set the VLAN mode to either access (the default) or trunk.

switchport mode {**access** | **trunk**}

no switchport mode {**access** | **trunk**}

Syntax Description

access	Sets the switch port to access mode, which allows the switch port to pass traffic for only one VLAN. Packets exit the switch port without an 802.1Q VLAN tag. If a packet enters the switch port with a tag, the packet is dropped.
trunk	Sets the switch port to trunk mode, so it can pass traffic for multiple VLANs. Packets exit the switch port with an 802.1Q VLAN tag. If a packet enters the switch port without a tag, the packet is dropped.

Defaults

By default, the mode is access.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.
7.2(2)	You can now configure multiple trunk ports, rather than being limited to one trunk.

Usage Guidelines

By default, the VLAN mode of the switch port is to be an access port (one VLAN associated with the switch port). In access mode, assign a switch port to a VLAN using the **switchport access vlan** command. If you want to create a trunk port to pass multiple VLANs on the switch port, set the mode to trunk mode, and then use the **switchport trunk allowed vlan** command to assign multiple VLANs to the trunk. If you set the mode to trunk mode, and you have not yet configured the **switchport trunk allowed vlan** command, the switch port remains in "line protocol down" state and cannot participate in traffic forwarding. Trunk mode is available only with the Security Plus license.

The **switchport vlan access** command does not take effect unless the mode is set to access mode. The **switchport trunk allowed vlan** command does not take effect unless the mode is set to trunk mode.

Examples

The following example configures an access mode switch port assigned to VLAN 100, and a trunk mode switch port assigned to VLANs 200 and 300:

```
hostname(config-if)# interface ethernet 0/0
hostname(config-if)# switchport access vlan 100
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/1
hostname(config-if)# switchport mode trunk
hostname(config-if)# switchport trunk allowed vlan 200,300
hostname(config-if)# no shutdown

...
```

Related Commands

Command	Description
interface	Configures an interface and enters interface configuration mode.
show running-config interface	Shows the interface configuration in the running configuration.
switchport access vlan	Assigns the switch port to a VLAN.
switchport protected	Prevents a switch port from communicating with other switch port on the same VLAN for extra security.
switchport trunk allowed vlan	Assigns VLANs to a trunk port.

switchport monitor

For models with a built-in switch, such as the ASA 5505 adaptive security appliance, use the **switchport monitor** command in interface configuration mode to enable SPAN, also known as switch port monitoring. The port for which you enter this command (called the destination port) receives a copy of every packet transmitted or received on the specified source port. The SPAN feature lets you attach a sniffer to the destination port so you can monitor traffic. You can specify multiple source ports by entering this command multiple times. You can only enable SPAN for one destination port. To disable monitoring of a source port, use the **no** form of this command.

switchport monitor *source_port* [**tx** | **rx** | **both**]

no switchport monitor *source_port* [**tx** | **rx** | **both**]

Syntax Description

source_port	Specifies the port you want to monitor. You can specify any Ethernet port as well as the Internal-Data0/1 backplane port that passes traffic between VLAN interfaces. Because the Internal-Data0/1 port is a Gigabit Ethernet port, you might overload the Fast Ethernet destination port with traffic. Monitor the port Internal-Data0/1 with caution.
tx	(Optional) Specifies that only transmitted traffic is monitored.
rx	(Optional) Specifies that only received traffic is monitored.
both	(Optional) Specifies that both transmitted and received traffic is monitored. **both** is the default.

Defaults

The default type of traffic to monitor is **both**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

If you do not enable SPAN, then attaching a sniffer to one of the switch ports only captures traffic to or from that port. To capture traffic to or from multiple ports, you need to enable SPAN and identify the ports you want to monitor.

Use caution while connecting a SPAN destination port to another switch, as it could result in network loops.

Examples

The following example configures the Ethernet 0/1 port as the destination port which monitors the Ethernet 0/0 and Ethernet 0/2 ports:

```
hostname(config)# interface ethernet 0/1
hostname(config-if)# switchport monitor ethernet 0/0
hostname(config-if)# switchport monitor ethernet 0/2
```

Related Commands

Command	Description
interface	Configures an interface and enters interface configuration mode.
show running-config interface	Shows the interface configuration in the running configuration.
switchport access vlan	Assigns the switch port to a VLAN.
switchport protected	Prevents a switch port from communicating with other switch port on the same VLAN for extra security.

switchport protected

For models with a built-in switch, such as the ASA 5505 adaptive security appliance, use the **switchport protected** command in interface configuration mode to prevent the switch port from communicating with other protected switch ports on the same VLAN. This feature provides extra security to the other switch ports on a VLAN if one switch port becomes compromised.

switchport protected

no switchport protected

Syntax Description

This command has no arguments or keywords.

Defaults

By default, the interfaces are not protected.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

You might want to prevent switch ports from communicating with each other if the devices on those switch ports are primarily accessed from other VLANs, you do not need to allow intra-VLAN access, and you want to isolate the devices from each other in case of infection or other security breach. For example, if you have a DMZ that hosts three web servers, you can isolate the web servers from each other if you apply the **switchport protected** command to each switch port. The inside and outside networks can both communicate with all three web servers, and vice versa, but the web servers cannot communicate with each other.

Communication to and from unprotected ports is not restricted by this command.

Examples

The following example configures seven switch ports. The Ethernet 0/4, 0/5, and 0/6 are assigned to the DMZ network and are protected from each other.

```
hostname(config)# interface ethernet 0/0
hostname(config-if)# switchport access vlan 100
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/1
hostname(config-if)# switchport access vlan 200
```

```
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/2
hostname(config-if)# switchport access vlan 200
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/3
hostname(config-if)# switchport access vlan 200
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/4
hostname(config-if)# switchport access vlan 300
hostname(config-if)# switchport protected
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/5
hostname(config-if)# switchport access vlan 300
hostname(config-if)# switchport protected
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/6
hostname(config-if)# switchport access vlan 300
hostname(config-if)# switchport protected
hostname(config-if)# no shutdown

...
```

Related Commands

Command	Description
interface	Configures an interface and enters interface configuration mode.
show running-config interface	Shows the interface configuration in the running configuration.
switchport access vlan	Assigns the switch port to a VLAN.
switchport mode	Sets the VLAN mode to be access or trunk.
switchport trunk allowed vlan	Assigns VLANs to a trunk port.

switchport trunk

For models with a built-in switch, such as the ASA 5505 adaptive security appliance, use the **switchport trunk** command in interface configuration mode to assign VLANs to the trunk port. Use the **no** form of the command to remove a VLAN from the trunk.

switchport trunk {allowed vlans *vlan_range* **| native vlan** v*lan*}

no switchport trunk {allowed vlans *vlan_range* **| native vlan** v*lan*}

Syntax Description

allowed vlans *vlan_range*	Identifies one or more VLANs that you can assign to the trunk port. The VLAN ID is between 1 and 4090. The *vlan_range* can be identified in one of the following ways: • A single number (n) • A range (n-x) Separate numbers and ranges by commas, for example: 5,7-10,13,45-100 You can enter spaces instead of commas, but the command is saved to the configuration with commas. You can include the native VLAN in this command, but it is not required; the native VLAN is passed whether it is included in this command or not.
native vlan *vlan*	Assigns a native VLAN to the trunk. Packets on the native VLAN are not modified when sent over the trunk. For example, if a port has VLANs 2, 3 and 4 assigned to it, and VLAN 2 is the native VLAN, then packets on VLAN 2 that egress the port are not modified with an 802.1Q header. Frames that ingress (enter) this port and have no 802.1Q header are put into VLAN 2. Each port can only have one native VLAN, but every port can have either the same or a different native VLAN.

Defaults

By default, no VLANs are assigned to the trunk.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.
7.2(2)	This command was modified to allow more than 3 VLANs per switch port. Also, you can now configure multiple trunk ports, instead of being limited to only one. This command also uses commas instead of spaces to separate VLAN IDs.
7.2(4)/8.0(4)	Native VLAN support was introduced with the **native vlan** keywords.

Usage Guidelines

If you want to create a trunk port to pass multiple VLANs on the switch port, set the mode to trunk mode using the **switchport mode trunk** command, and then use the **switchport trunk** command to assign VLANs to the trunk. This switch port cannot pass traffic until you assign at least one VLAN to it. If you set the mode to trunk mode, and you have not yet configured the **switchport trunk allowed vlan** command, the switch port remains in "line protocol down" state and cannot participate in traffic forwarding. Trunk mode is available only with the Security Plus license. The **switchport trunk** command does not take effect unless the mode is set to trunk mode using the **switchport mode trunk** command.

Note This command is not downgrade-compatible to Version 7.2(1); the commas separating the VLANs are not recognized in 7.2(1). If you downgrade, be sure to separate the VLANs with spaces, and do not exceed the 3 VLAN limit.

Examples

The following example configures seven VLAN interfaces, including the failover interface which is configured using the **failover lan** command. VLANs 200, 201, and 202 are trunked on Ethernet 0/1.

```
hostname(config)# interface vlan 100
hostname(config-if)# nameif outside
hostname(config-if)# security-level 0
hostname(config-if)# ip address 10.1.1.1 255.255.255.0
hostname(config-if)# no shutdown

hostname(config-if)# interface vlan 200
hostname(config-if)# nameif inside
hostname(config-if)# security-level 100
hostname(config-if)# ip address 10.2.1.1 255.255.255.0
hostname(config-if)# no shutdown

hostname(config-if)# interface vlan 201
hostname(config-if)# nameif dept1
hostname(config-if)# security-level 90
hostname(config-if)# ip address 10.2.2.1 255.255.255.0
hostname(config-if)# no shutdown

hostname(config-if)# interface vlan 202
hostname(config-if)# nameif dept2
hostname(config-if)# security-level 90
hostname(config-if)# ip address 10.2.3.1 255.255.255.0
hostname(config-if)# no shutdown

hostname(config-if)# interface vlan 300
hostname(config-if)# nameif dmz
hostname(config-if)# security-level 50
hostname(config-if)# ip address 10.3.1.1 255.255.255.0
hostname(config-if)# no shutdown
```

```
hostname(config-if)# interface vlan 400
hostname(config-if)# nameif backup-isp
hostname(config-if)# security-level 50
hostname(config-if)# ip address 10.1.2.1 255.255.255.0
hostname(config-if)# no shutdown

hostname(config-if)# failover lan faillink vlan500
hostname(config)# failover interface ip faillink 10.4.1.1 255.255.255.0 standby 10.4.1.2
255.255.255.0

hostname(config)# interface ethernet 0/0
hostname(config-if)# switchport access vlan 100
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/1
hostname(config-if)# switchport mode trunk
hostname(config-if)# switchport trunk allowed vlan 200-202
hostname(config-if)# switchport trunk native vlan 5
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/2
hostname(config-if)# switchport access vlan 300
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/3
hostname(config-if)# switchport access vlan 400
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/4
hostname(config-if)# switchport access vlan 500
hostname(config-if)# no shutdown
```

Related Commands

Command	Description
interface	Configures an interface and enters interface configuration mode.
show running-config interface	Shows the interface configuration in the running configuration.
switchport access vlan	Assigns the switch port to a VLAN.
switchport mode	Sets the VLAN mode to be access or trunk.
switchport protected	Prevents a switch port from communicating with other switch ports on the same VLAN for extra security.

synack-data

To set the action for TCP SYNACK packets that contain data, use the **synack-data** command in tcp-map configuration mode. To set the value back to the default, use the **no** form of this command. This command is part of the TCP normalization policy enabled using the **set connection advanced-options** command.

synack-data {**allow** | **drop**}

no synack-data

Syntax Description

allow	Allows TCP SYNACK packets that contain data.
drop	Drops TCP SYNACK packets that contain data.

Defaults

The default action is to drop TCP SYNACK packets that contain data.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tcp-map configuration	•	•	•	•	—

Command History

Release	Modification
7.2(4)/8.0(4)	This command was introduced.

Usage Guidelines

To enable TCP normalization, use the Modular Policy Framework:

1. **tcp-map**—Identifies the TCP normalization actions.
   a. **synack-data**—In tcp-map configuration mode, you can enter the **synack-data** command and many others.
2. **class-map**—Identify the traffic on which you want to perform TCP normalization.
3. **policy-map**—Identify the actions associated with each class map.
   a. **class**—Identify the class map on which you want to perform actions.
   b. **set connection advanced-options**—Identify the tcp-map you created.
4. **service-policy**—Assigns the policy map to an interface or globally.

Examples

The following example sets the ASA to allow TCP SYNACK packets that contain data:

```
hostname(config)# tcp-map tmap
```

```
hostname(config-tcp-map)# synack-data allow
hostname(config)# class-map cmap
hostname(config-cmap)# match any
hostname(config)# policy-map pmap
hostname(config-pmap)# class cmap
hostname(config-pmap)# set connection advanced-options tmap
hostname(config)# service-policy pmap global
hostname(config)#
```

Related Commands

Command	Description
class-map	Identifies traffic for a service policy.
policy-map	dentifies actions to apply to traffic in a service policy.
set connection advanced-options	Enables TCP normalization.
service-policy	Applies a service policy to interface(s).
show running-config tcp-map	Shows the TCP map configuration.
tcp-map	Creates a TCP map and allows access to tcp-map configuration mode.

syn-data

To allow or drop SYN packets with data, use the **syn-data** command in tcp-map configuration mode. To remove this specification, use the **no** form of this command.

syn-data {**allow** | **drop**}

no syn-data {**allow** | **drop**}

Syntax Description

allow	Allows SYN packets that contain data.
drop	Drops SYN packets that contain data.

Defaults

Packets with SYN data are allowed by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Tcp-map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **tcp-map** command is used along with the Modular Policy Framework infrastructure. Define the class of traffic using the **class-map** command and customize the TCP inspection with **tcp-map** commands. Apply the new TCP map using the **policy-map** command. Activate TCP inspection with **service-policy** commands.

Use the **tcp-map** command to enter tcp-map configuration mode. Use the **syn-data** command in tcp-map configuration mode to drop packets with data in SYN packets.

According to the TCP specification, TCP implementations are required to accept data contained in a SYN packet. Because this is a subtle and obscure point, some implementations may not handle this correctly. To avoid any vulnerabilities to insertion attacks involving incorrect end-system implementations, you may choose to drop packets with data in SYN packets.

Examples

The following example shows how to drop SYN packets with data on all TCP flows:

```
hostname(config)# access-list TCP extended permit tcp any any
hostname(config)# tcp-map tmap
hostname(config-tcp-map)# syn-data drop
hostname(config)# class-map cmap
hostname(config-cmap)# match access-list TCP
```

```
hostname(config)# policy-map pmap
hostname(config-pmap)# class cmap
hostname(config-pmap)# set connection advanced-options tmap
hostname(config)# service-policy pmap global
hostname(config)#
```

Related Commands

Command	Description
class	Specifies a class map to use for traffic classification.
policy-map	Configures a policy; that is, an association of a traffic class and one or more actions.
set connection	Configures connection values.
tcp-map	Creates a TCP map and allows access to tcp-map configuration mode.

sysopt connection permit-vpn

For traffic that enters the ASA through a VPN tunnel and is then decrypted, use the **sysopt connection permit-vpn** command in global configuration mode to allow the traffic to bypass interface access lists. Group policy and per-user authorization access lists still apply to the traffic. To disable this feature, use the **no** form of this command.

sysopt connection permit-vpn

no sysopt connection permit-vpn

Syntax Description

This command has no arguments or keywords.

Defaults

This feature is enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command is now enabled by default. Also, only interface access lists are bypassed; group policy or per-user access lists remain in force.
7.1(1)	This command was changed from **sysopt connection permit-ipsec**.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

By default, the ASA allows VPN traffic to terminate on an ASA interface; you do not need to allow IKE or ESP (or other types of VPN packets) in an interface access list. By default, you also do not need an interface access list for local IP addresses of decrypted VPN packets. Because the VPN tunnel was terminated successfully using VPN security mechanisms, this feature simplifies configuration and maximizes the ASA performance without any security risks. (Group policy and per-user authorization access lists still apply to the traffic.)

You can require an interface access list to apply to the local IP addresses by entering the **no sysopt connection permit-vpn** command. See the **access-list** and **access-group** commands to create an access list and apply it to an interface. The access list applies to the local IP address, and not to the original client IP address used before the VPN packet was decrypted.

Examples

The following example requires decrypted VPN traffic to comply with interface access lists:

```
hostname(config)# no sysopt connection permit-vpn
```

Related Commands

Command	Description
clear configure sysopt	Clears the **sysopt** command configuration.
show running-config sysopt	Shows the **sysopt** command configuration.
sysopt connection tcpmss	Overrides the maximum TCP segment size or ensures that the maximum is not less than a specified size.
sysopt connection timewait	Forces each TCP connection to linger in a shortened TIME_WAIT state after the final normal TCP close-down sequence.

sysopt connection preserve-vpn-flows

To preserve and resume stateful (TCP) tunneled IPsec LAN-to-LAN traffic within the timeout period after the tunnel drops and recovers, use the **sysopt connection preserve-vpn-flows** command. To disable this feature, use the **no** form of this command.

sysopt connection preserve-vpn-flows

no sysopt connection preserve-vpn-flows

Syntax Description

This command has no arguments or keywords.

Defaults

This feature is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.0(4)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

With the persistent IPsec tunneled flows feature enabled, as long as the tunnel is recreated within the timeout window, data continues flowing successfully because the security appliance still has access to the state information in the original flow.

This command supports only IPsec LAN-to-LAN tunnels, including Network Extension Mode. It does not support AnyConnect/SSL VPN or IPsec remote-access tunnels.

Examples

The following example specifies that the state information for the tunnel will be preserved and the tunneled IPsec LAN-to-LAN VPN traffic will resume after the tunnel drops and is reestablished within the timeout period:

```
hostname(config)# no sysopt connection preserve-vpn-flows
```

To see whether this feature is enabled, enter the show run all command for sysopt:

```
hostname(config)# show run all sysopt
```

A sample result follows. For illustrative purposes, in this and all following examples, the preserve-vpn-flows item is bolded:

```
no sysopt connection timewait
sysopt connection tcpmss 1380
sysopt connection tcpmss minimum 0
no sysopt nodnsalias inbound
no sysopt nodnsalias outbound
no sysopt radius ignore-secret
sysopt connection permit-vpn
no sysopt connection reclassify-vpn
no sysopt connection preserve-vpn-flows
hostname(config)#
```

sysopt connection reclassify-vpn

To reclassify existing VPN flows, use the **sysopt connection reclassify-vpn** command in global configuration mode. To disable this feature, use the **no** form of this command.

sysopt connection reclassify-vpn

no sysopt connection reclassify-vpn

Syntax Description

This command has no arguments or keywords.

Defaults

This feature is enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

When VPN tunnels come up, this command reclassifies existing VPN flows to make sure that flows that need encryption get torn down and recreated.

This command only applies for LAN-to-LAN and dynamic VPNs. This command has no effect on EZVPN or VPN client connections.

Examples

The following example enables VPN reclassification:

```
hostname(config)# sysopt connection reclassify-vpn
```

Related Commands

Command	Description
clear configure sysopt	Clears the **sysopt** command configuration.
show running-config sysopt	Shows the **sysopt** command configuration.
sysopt connection permit-vpn	Permits any packets that come from an IPsec tunnel without checking any acess lists for interfaces.

Command	Description
sysopt connection tcpmss	Overrides the maximum TCP segment size or ensures that the maximum is not less than a specified size.
sysopt connection timewait	Forces each TCP connection to linger in a shortened TIME_WAIT state after the final normal TCP close-down sequence.

sysopt connection tcpmss

To ensure that the maximum TCP segment size does not exceed the value you set and that the maximum is not less than a specified size, use the **sysopt connection tcpmss** command in global configuration mode. To restore the default setting, use the **no** form of this command.

sysopt connection tcpmss [**minimum**] *bytes*

no sysopt connection tcpmss [**minimum**] [*bytes*]

Syntax Description

bytes	Sets the maximum TCP segment size in bytes, between 48 and any maximum number. The default value is 1380 bytes. You can disable this feature by setting *bytes* to 0. For the **minimum** keyword, the *bytes* represent the smallest maximum value allowed.
minimum	Overrides the maximum segment size to be no less than *bytes*, between 48 and 65535 bytes. This feature is disabled by default (set to 0).

Defaults

The default maximum value is 1380 bytes. The minimum feature is disabled by default (set to 0).

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
Preexisting	This command was preexisting.

Usage Guidelines

Both the host and the server can set the maximum segment size when they first establish a connection. If either maximum exceeds the value you set with the **sysopt connection tcpmss** command, then the ASA overrides the maximum and inserts the value you set. If either maximum is less than the value you set with the **sysopt connection tcpmss minimum** command, then the ASA overrides the maximum and inserts the "minimum" value you set (the minimum value is actually the smallest maximum allowed). For example, if you set a maximum size of 1200 bytes and a minimum size of 400 bytes, when a host requests a maximum size of 1300 bytes, then the ASA alters the packet to request 1200 bytes (the maximum). If another host requests a maximum value of 300 bytes, then the ASA alters the packet to request 400 bytes (the minimum).

The default of 1380 bytes allows room for header information so that the total packet size does not exceed 1500 bytes, which is the default MTU for Ethernet. See the following calculation:

1380 data + 20 TCP + 20 IP + 24 AH + 24 ESP_CIPHER + 12 ESP_AUTH + 20 IP = 1500 bytes

If the host or server does not request a maximum segment size, the ASA assumes that the RFC 793 default value of 536 bytes is in effect.

If you set the maximum size to be greater than 1380, packets might become fragmented, depending on the MTU size (which is 1500 by default). Large numbers of fragments can impact the performance of the ASA when it uses the Frag Guard feature. Setting the minimum size prevents the TCP server from sending many small TCP data packets to the client and impacting the performance of the server and the network.

Note Although not advised for normal use of this feature, if you encounter the syslog IPFRAG messages 209001 and 209002, you can raise the *bytes* value.

Examples

The following example sets the maximum size to 1200 and the minimum to 400:

```
hostname(config)# sysopt connection tcpmss 1200
hostname(config)# sysopt connection tcpmss minimum 400
```

Related Commands

Command	Description
clear configure sysopt	Clears the **sysopt** command configuration.
show running-config sysopt	Shows the **sysopt** command configuration.
sysopt connection permit-ipsec	Permits any packets that come from an IPsec tunnel without checking any ACLs for interfaces.
sysopt connection timewait	Forces each TCP connection to linger in a shortened TIME_WAIT state after the final normal TCP close-down sequence.

sysopt connection timewait

To force each TCP connection to linger in a shortened TIME_WAIT state of at least 15 seconds after the final normal TCP close-down sequence, use the **sysopt connection timewait** command in global configuration mode. To disable this feature, use the **no** form of this command. You might want to use this feature if an end host application default TCP terminating sequence is a simultaneous close.

sysopt connection timewait

no sysopt connection timewait

Note An RST packet (not a normal TCP close-down sequence) will also trigger the 15 second delay. The ASA holds on to the connection for 15 seconds after receiving the last packet (either FIN/ACK or RST) of the connection .

Syntax Description

This command has no arguments or keywords.

Defaults

This feature is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The default behavior of the ASA is to track the shutdown sequence and release the connection after two FINs and the ACK of the last FIN segment. This quick release heuristic enables the ASA to sustain a high connection rate, based on the most common closing sequence, known as the normal close sequence. However, in a simultaneous close, both ends of the transaction initiate the closing sequence, as opposed to the normal close sequence where one end closes and the other end acknowledges prior to initiating its own closing sequence (see RFC 793). Thus, in a simultaneous close, the quick release forces one side of the connection to linger in the CLOSING state. Having many sockets in the CLOSING state can degrade the performance of an end host. For example, some WinSock mainframe clients are known to exhibit this behavior and degrade the performance of the mainframe server. Using the **sysopt connection timewait** command creates a window for the simultaneous close down sequence to complete.

Examples

The following example enables the timewait feature:

```
hostname(config)# sysopt connection timewait
```

Related Commands

Command	Description
clear configure sysopt	Clears the **sysopt** command configuration.
show running-config sysopt	Shows the **sysopt** command configuration.
sysopt connection permit-ipsec	Permits any packets that come from an IPsec tunnel without checking any ACLs for interfaces.
sysopt connection tcpmss	Overrides the maximum TCP segment size or ensures that the maximum is not less than a specified size.

sysopt noproxyarp

To disable proxy ARP for NAT global addresses or VPN client addresses on an interface, use the **sysopt noproxyarp** command in global configuration mode. To reenable proxy ARP, use the **no** form of this command.

sysopt noproxyarp *interface_name*

no sysopt noproxyarp *interface_name*

Syntax Description

interface_name	The interface name for which you want to disable proxy ARP.

Defaults

Proxy ARP is enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.0(3)	This command was extended to affect VPN proxy ARPs when the VPN client addresses overlap with an internal network.

Usage Guidelines

If you have a VPN client address pool that overlaps with an existing network, the ASA by default sends proxy ARPs on all interfaces. If you have another interface that is on the same Layer 2 domain, it will see the ARP requests and will answer with the MAC address of its interface. The result of this is that the return traffic of the VPN clients towards the internal hosts will go to the wrong interface and will get dropped. In this case, you need to enter the **sysopt noproxyarp** command for the interface where you do not want proxy ARPs.

In rare circumstances, you might want to disable proxy ARP for NAT global addresses.

When a host sends IP traffic to another device on the same Ethernet network, the host needs to know the MAC address of the device. ARP is a Layer 2 protocol that resolves an IP address to a MAC address. A host sends an ARP request asking “Who is this IP address?” The device owning the IP address replies, “I own that IP address; here is my MAC address.”

Proxy ARP is when a device responds to an ARP request with its own MAC address, even though the device does not own the IP address. The ASA uses proxy ARP when you configure NAT and specify a global address that is on the same network as the ASA interface. The only way traffic can reach the hosts is if the ASA uses proxy ARP to claim that the ASA MAC address is assigned to destination global addresses.

Examples

The following example disables proxy ARP on the inside interface:

```
hostname(config)# sysopt noproxyarp inside
```

Related Commands

Command	Description
alias	Translates an outside address and alters the DNS records to accommodate the translation.
clear configure sysopt	Clears the **sysopt** command configuration.
show running-config sysopt	Shows the **sysopt** command configuration.
sysopt nodnsalias	Disables alteration of the DNS A record address when you use the **alias** command.

sysopt radius ignore-secret

To ignore the authentication key in RADIUS accounting responses, use the **sysopt radius ignore-secret** command in global configuration mode. To disable this feature, use the **no** form of this command. You might need to ignore the key for compatibility with some RADIUS servers.

sysopt radius ignore-secret

no sysopt radius ignore-secret

Syntax Description

This command has no arguments or keywords.

Defaults

This feature is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Some RADIUS servers fail to include the key in the authenticator hash within the accounting acknowledgment response. This usage caveat can cause the ASA to continually retransmit the accounting request. Use the **sysopt radius ignore-secret** command to ignore the key in these acknowledgments, thus avoiding the retransmit problem. (The key identified here is the same one you set with the **aaa-server host** command.)

Examples

The following example ignores the authentication key in accounting responses:

```
hostname(config)# sysopt radius ignore-secret
```

Related Commands

Command	Description
aaa-server host	Identifies a AAA server.
clear configure sysopt	Clears the **sysopt** command configuration.
show running-config sysopt	Shows the **sysopt** command configuration.

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tcp-map through title Commands

tcp-map

To define a set of TCP normalization actions, use the **tcp-map** command in global configuration mode. The TCP normalization feature lets you specify criteria that identify abnormal packets, which the ASA drops when they are detected. To remove the TCP map, use the **no** form of this command.

tcp-map *map_name*

no tcp-map *map_name*

Syntax Description

map_name	Specifies the TCP map name.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(4)/8.0(4)	The **invalid-ack**, **seq-past-window**, and **synack-data** subcommands were added.

Usage Guidelines

This feature uses Modular Policy Framework. First define the TCP normalization actions you want to take using the **tcp-map** command. The **tcp-map** command enters tcp-map configuration mode, where you can enter one or more commands to define the TCP normalization actions. Then define the traffic to which you want to apply the TCP map using the **class-map** command. Enter the **policy-map** command to define the policy, and enter the **class** command to reference the class map. In class configuration mode, enter the **set connection advanced-options** command to reference the TCP map. Finally, apply the policy map to an interface using the **service-policy** command. For more information about how Modular Policy Framework works, see the CLI configuration guide.

The following commands are available in tcp-map configuration mode:

check-retransmission	Enables and disables the retransmit data checks.
checksum-verification	Enables and disable checksum verification.
exceed-mss	Allows or drops packets that exceed MSS set by peer.
invalid-ack	Sets the action for packets with an invalid ACK.

queue-limit	Configures the maximum number of out-of-order packets that can be queued for a TCP connection. This command is only available on the ASA 5500 series adaptive ASA. On the PIX 500 series ASA, the queue limit is 3 and cannot be changed.
reserved-bits	Sets the reserved flags policy in the ASA.
seq-past-window	Sets the action for packets that have past-window sequence numbers, namely the sequence number of a received TCP packet is greater than the right edge of the TCP receiving window.
synack-data	Sets the action for TCP SYNACK packets that contain data.
syn-data	Allows or drops SYN packets with data.
tcp-options	Allows or clears the selective-ack, timestamps, or window-scale TCP options.
ttl-evasion-protection	Enables or disables the TTL evasion protection offered by the ASA.
urgent-flag	Allows or clears the URG pointer through the ASA.
window-variation	Drops a connection that has changed its window size unexpectedly.

Examples

For example, to allow urgent flag and urgent offset packets for all traffic sent to the range of TCP ports between the well known FTP data port and the Telnet port, enter the following commands:

```
hostname(config)# tcp-map tmap
hostname(config-tcp-map)# urgent-flag allow

hostname(config-tcp-map)# class-map urg-class
hostname(config-cmap)# match port tcp range ftp-data telnet

hostname(config-cmap)# policy-map pmap
hostname(config-pmap)# class urg-class
hostname(config-pmap-c)# set connection advanced-options tmap

hostname(config-pmap-c)# service-policy pmap global
```

Related Commands

Command	Description
class (policy-map)	Specifies a class map to use for traffic classification.
clear configure tcp-map	Clears the TCP map configuration.
policy-map	Configures a policy; that is, an association of a traffic class and one or more actions.
show running-config tcp-map	Displays the information about the TCP map configuration.
tcp-options	Allows or clears the selective-ack, timestamps, or window-scale TCP options.

tcp-options

To allow or clear the TCP options through the ASA, use the **tcp-options** command in tcp-map configuration mode. To remove this specification, use the **no** form of this command.

tcp-options {**selective-ack** | **timestamp** | **window-scale**} {**allow** | **clear**}

no tcp-options {**selective-ack** | **timestamp** | **window-scale**} {**allow** | **clear**}

tcp-options range *lower upper* {**allow** | **clear** | **drop**}

no tcp-options range *lower upper* {**allow** | **clear** | **drop**}

Syntax Description

allow	Allows the TCP options through the TCP normalizer.
clear	Clears the TCP options through the TCP normalizer and allows the packet.
drop	Drops the packet.
lower	Lower bound ranges (6-7) and (9-255).
selective-ack	Sets the selective acknowledgement mechanism (SACK) option. The default is to allow the SACK option.
timestamp	Sets the timestamp option. Clearing the timestamp option will disable PAWS and RTT. The default is to allow the timestamp option.
upper	Upper bound range (6-7) and (9-255).
window-scale	Sets the window scale mechanism option. The default is to allow the window scale mechanism option.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Tcp-map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **tcp-map** command is used along with the Modular Policy Framework infrastructure. Define the class of traffic using the **class-map** command and customize the TCP inspection with **tcp-map** commands. Apply the new TCP map using the **policy-map** command. Activate TCP inspection with **service-policy** commands.

Use the **tcp-map** command to enter tcp-map configuration mode. Use the **tcp-options** command in tcp-map configuration mode to clear selective-acknowledgement, window-scale, and timestamp TCP options. You can also clear or drop packets with options that are not very well defined.

Examples

The following example shows how to drop all packets with TCP options in the ranges of 6-7 and 9-255:

```
hostname(config)# access-list TCP extended permit tcp any any
hostname(config)# tcp-map tmap
hostname(config-tcp-map)# tcp-options range 6 7 drop
hostname(config-tcp-map)# tcp-options range 9 255 drop
hostname(config)# class-map cmap
hostname(config-cmap)# match access-list TCP
hostname(config)# policy-map pmap
hostname(config-pmap)# class cmap
hostname(config-pmap)# set connection advanced-options tmap
hostname(config)# service-policy pmap global
```

Related Commands

Command	Description
class	Specifies a class map to use for traffic classification.
policy-map	Configures a policy; that is, an association of a traffic class and one or more actions.
set connection	Configures connection values.
tcp-map	Creates a TCP map and allows access to tcp-map configuration mode.

telnet

To allow Telnet access to an interface, use the **telnet** command in global configuration mode. To remove Telnet access, use the **no** form of this command.

telnet {*ipv4_address mask* | *ipv6_address/prefix*} *interface_name*

no telnet {*ipv4_address mask* | *ipv6_address/prefix*} *interface_name*

Syntax Description

interface_name	Specifies the name of the interface on which to allow Telnet. You cannot enable Telnet on the lowest security interface unless you use Telnet in a VPN tunnel.
ipv4_address mask	Specifies the IPv4 address of a host or network authorized to Telnet to the ASA, and the subnet mask.
ipv6_address/prefix	Specifies the IPv6 address/prefix authorized to Telnet to the ASA.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(2), 9.1(2)	The default password, "cisco," has been removed; you must actively set a login password using the **password** command.

Usage Guidelines

The **telnet** command lets you specify which hosts can access the ASA CLI with Telnet. You can enable Telnet to the ASA on all interfaces. However, You cannot use Telnet to the lowest security interface unless you use Telnet inside a VPN tunnel.

Use the **password** command to set a password for Telnet access to the console. Use the **who** command to view which IP addresses are currently accessing the ASA console. Use the **kill** command to terminate an active Telnet console session.

If you use the **aaa authentication telnet console** command, Telnet console access must be authenticated with an authentication server.

Examples

This example shows how to permit hosts 192.168.1.3 and 192.168.1.4 to access the ASA CLI through Telnet. In addition, all the hosts on the 192.168.2.0 network are given access.

```
hostname(config)# telnet 192.168.1.3 255.255.255.255 inside
hostname(config)# telnet 192.168.1.4 255.255.255.255 inside
hostname(config)# telnet 192.168.2.0 255.255.255.0 inside
hostname(config)# show running-config telnet
192.168.1.3 255.255.255.255 inside
192.168.1.4 255.255.255.255 inside
192.168.2.0 255.255.255.0 inside
```

This example shows a Telnet console login session (the password does not display when entered):

```
hostname# passwd: cisco

Welcome to the XXX
…
Type help or '?' for a list of available commands.
hostname>
```

You can remove individual entries with the **no telnet** command or all telnet command statements with the **clear configure telnet** command:

```
hostname(config)# no telnet 192.168.1.3 255.255.255.255 inside
hostname(config)# show running-config telnet
192.168.1.4 255.255.255.255 inside
192.168.2.0 255.255.255.0 inside

hostname(config)# clear configure telnet
```

Related Commands

Command	Description
clear configure telnet	Removes a Telnet connection from the configuration.
kill	Terminates a Telnet session.
show running-config telnet	Displays the current list of IP addresses that are authorized to use Telnet connections to the ASA.
telnet timeout	Sets the Telnet timeout.
who	Displays active Telnet administration sessions on the ASA.

telnet timeout

To set the Telnet idle timeout, use the **telnet timeout** command in global configuration mode. To restore the default timeout, use the **no** form of this command.

telnet timeout *minutes*

no telnet timeout *minutes*

Syntax Description

minutes	Number of minutes that a Telnet session can be idle before being closed by the ASA. Valid values are from 1 to 1440 minutes. The default is 5 minutes.

Defaults

By default, Telnet sessions left idle for five minutes are closed by the ASA.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Use the **telnet timeout** command to set the maximum time that a console Telnet session can be idle before being logged off by the ASA.

Examples

This example shows how to change the maximum session idle duration:

```
hostname(config)# telnet timeout 10
hostname(config)# show running-config telnet timeout
telnet timeout 10 minutes
```

Related Commands

Command	Description
clear configure telnet	Removes a Telnet connection from the configuration.
kill	Terminates a Telnet session.
show running-config telnet	Displays the current list of IP addresses that are authorized to use Telnet connections to the ASA.

Command	Description
telnet	Enables Telnet access to the ASA.
who	Displays active Telnet administration sessions on the ASA.

terminal

To allow syslog messages to show in the current Telnet session, use the **terminal monitor** command in privileged EXEC mode. To disable syslog messages, use the **no** form of this command.

terminal {**monitor** | **no monitor**}

Syntax Description

monitor	Enables the display of syslog messages in the current Telnet session.
no monitor	Disables the display of syslog messages in the current Telnet session.

Defaults

Syslog messages are disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

This example shows how to display and disable syslog messages in the current session:

```
hostname# terminal monitor
hostname# terminal no monitor
```

Related Commands

Command	Description
clear configure terminal	Clears the terminal display width setting.
pager	Sets the number of lines to display in a Telnet session before the "---more---" prompt. This command is saved to the configuration.
show running-config terminal	Displays the current terminal settings.
terminal pager	Sets the number of lines to display in a Telnet session before the "---more---" prompt. This command is not saved to the configuration.
terminal width	Sets the terminal display width in global configuration mode.

terminal pager

To set the number of lines on a page before the "---More---" prompt appears for Telnet sessions, use the **terminal pager** command in privileged EXEC mode.

terminal pager [lines] *lines*

Syntax Description

[**lines**] *lines*	Sets the number of lines on a page before the "---More---" prompt appears. The default is 24 lines; 0 means no page limit. The range is 0 through 2147483647 lines. The **lines** keyword is optional, and the command is the same with or without it.

Defaults

The default is 24 lines.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command changes the pager line setting only for the current Telnet session. To save a new default pager setting to the configuration, use the **pager** command.

If you use Telnet to access the admin context, then the pager line setting follows your session when you change to other contexts, even if the **pager** command in a given context has a different setting. To change the current pager setting, enter the **terminal pager** command with a new setting, or you can enter the **pager** command in the current context. In addition to saving a new pager setting to the context configuration, the **pager** command applies the new setting to the current Telnet session.

Examples

The following example changes the number of lines displayed to 20:

```
hostname# terminal pager 20
```

Related Commands

Command	Description
clear configure terminal	Clears the terminal display width setting.
pager	Sets the number of lines to display in a Telnet session before the "---More---" prompt. This command is saved to the configuration.

Command	Description
show running-config terminal	Displays the current terminal settings.
terminal	Allows syslog messsages to display in the Telnet session.
terminal width	Sets the terminal display width in global configuration mode.

terminal width

To set the width for displaying information during console sessions, use the **terminal width** command in global configuration mode. To disable, use the **no** form of this command.

terminal width *columns*

no terminal width *columns*

Syntax Description

columns	Specifies the terminal width in columns. The default is 80. The range is 40 to 511.

Defaults

The default display width is 80 columns.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

This example shows how to terminal display width to 100 columns:

```
hostname# terminal width 100
```

Related Commands

Command	Description
clear configure terminal	Clears the terminal display width setting.
show running-config terminal	Displays the current terminal settings.
terminal	Sets the terminal line parameters in privileged EXEC mode.

test aaa-server

To check whether the ASA can authenticate or authorize users with a particular AAA server, use the **test aaa-server** command in privileged EXEC mode. Failure to reach the AAA server may be due to incorrect configuration on the ASA, or the AAA server may be unreachable for other reasons, such as restrictive network configurations or server downtime.

test aaa-server {**authentication** *server_tag* [**host** *ip_address*] [**username** *username*] [**password** *password*] | **authorization** *server_tag* [**host** *ip_address*] [**username** *username*][**ad-agent**]}

Syntax Description

ad-agent	Tests connectivity to the AAA AD agent server.
authentication	Tests a AAA server for authentication capability.
authorization	Tests a AAA server for legacy VPN authorization capability.
host *ip_address*	Specifies the server IP address. If you do not specify the IP address in the command, you are prompted for it.
password *password*	Specifies the user password. If you do not specify the password in the command, you are prompted for it.
server_tag	Specifies the AAA server tag as set by the **aaa-server** command.
username *username*	Specifies the username of the account used to test the AAA server settings. Make sure the username exists on the AAA server; otherwise, the test will fail. If you do not specify the username in the command, you are prompted for it.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(4)	This command was introduced.
8.4(2)	The **ad-agent** keyword was added.

Usage Guidelines

The **test aaa-server** command lets you verify that the ASA can authenticate users with a particular AAA server, and for legacy VPN authorization, if you can authorize a user. This command lets you test the AAA server without having an actual user who attempts to authenticate or authorize. It also helps you isolate whether AAA failures are due to misconfiguration of AAA server parameters, a connection problem to the AAA server, or other configuration errors on the ASA.

Examples

The following example configures a RADIUS AAA server named srvgrp1 on host 192.168.3.4, sets a timeout of 9 seconds, sets a retry-interval of 7 seconds, and configures authentication port 1650. The **test aaa-server** command following the setup of the AAA server parameters indicates that the authentication test failed to reach the server.

```
hostname(config)# aaa-server svrgrp1 protocol radius
hostname(config-aaa-server-group)# aaa-server svrgrp1 host 192.168.3.4
hostname(config-aaa-server-host)# timeout 9
hostname(config-aaa-server-host)# retry-interval 7
hostname(config-aaa-server-host)# authentication-port 1650
hostname(config-aaa-server-host)# exit
hostname(config)# test aaa-server authentication svrgrp1
Server IP Address or name: 192.168.3.4
Username: bogus
Password: mypassword
INFO: Attempting Authentication test to IP address <192.168.3.4> (timeout: 10 seconds)
ERROR: Authentication Rejected: Unspecified
```

The following is sample output from the **test aaa-server** command with a successful outcome:

```
hostname# test aaa-server authentication svrgrp1 host 192.168.3.4 username bogus password
mypassword
INFO: Attempting Authentication test to IP address <10.77.152.85> (timeout: 12 seconds)
INFO: Authentication Successful
```

Related Commands

Command	Description
aaa authentication console	Configures authentication for management traffic.
aaa authentication match	Configures authentication for through traffic.
aaa-server	Creates a AAA server group.
aaa-server host	Adds a AAA server to a server group.

test aaa-server ad-agent

To test the Active Directory Agent configuration after you configure, use the **test aaa-server ad-agent** command in AAA Server Group configuration mode.

test aaa-server ad-agent

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
AAA Server Group configuration mode	•	—	•	—	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

To configure the Active Directory Agent for the Identity Firewall, you must enter the **ad-agent-mode** command, which is a submode of the **aaa-server** command. Entering the **ad-agent-mode** command enters the AAA Server Group configuration mode.

After configuring the Active Directory Agent, enter the **test aaa-server ad-agent** command to verify that the ASA has a functional connection to the Active Directory Agent.

Periodically or on-demand, the AD Agent monitors the Active Directory server security event log file via WMI for user login and logoff events. The AD Agent maintains a cache of user ID and IP address mappings. and notifies the ASA of changes.

Configure the primary and secondary AD Agents for the AD Agent Server Group. When the ASA detects that the primary AD Agent is not responding and a secondary agent is specified, the ASA switches to secondary AD Agent. The Active Directory server for the AD agent uses RADIUS as the communication protocol; therefore, you should specify a key attribute for the shared secret between ASA and AD Agent.

Examples

The following example shows how to enable **ad-agent-mode** while configuring the Active Directory Agent for the Identity Firewall and then test the connection:

```
hostname(config)# aaa-server adagent protocol radius
hostname(config)# ad-agent-mode
hostname(config-aaa-server-group)# aaa-server adagent (inside) host 192.168.1.101
hostname(config-aaa-server-host)# key mysecret
```

```
hostname(config-aaa-server-hostkey)# user-identity ad-agent aaa-server adagent
hostname(config-aaa-server-host)# test aaa-server ad-agent
```

Related Commands

Command	Description
aaa-server	Create a AAA server group and configures AAA server parameters that are group-specific and common to all group hosts.
clear configure user-identity	Clears the configuration for the Identity Firewall feature.

test dynamic-access-policy attributes

To enter the dap attributes mode, from Privileged EXEC mode, enter the **test dynamic-access-policy attributes** command. Doing so lets you specify user and endpoint attribute value pairs.

dynamic-access-policy attributes

Defaults

No default value or behaviors.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Normally the ASA retrieves user authorization attributes from the AAA server and retrieves endpoint attributes from Cisco Secure Desktop, Host Scan, CNA or NAC. For the test command, you specify the user authorization and endpoint attributes in this attributes mode. The ASA writes them to an attribute database that the DAP subsystem references when evaluating the AAA selection attributes and endpoint select attributes for a DAP record.

This feature lets you experiment with creating a DAP record.

Examples

The following example shows how to use the **attributes** command.

```
hostname # test dynamic-access-policy attributes
hostname(config-dap-test-attr)#
```

Related Commands

Command	Description
dynamic-access-policy-record	Creates a DAP record.
attributes	Enters attributes mode, in which you can specify user attribute value pairs.
display	Displays current attribute list.

test dynamic-access-policy execute

To test already configured DAP records, use the test dynamic-access-policy execute command in privileged EXEC mode:

test dynamic-access-policy execute

Syntax Description

AAA attribute value	The DAP subsystem on the device references these values when evaluating the AAA and endpoint selection attributes for each record. – AAA Attribute—Identifies the AAA attribute. – Operation Value—Identifies the attribute as =/!= to the given value.
endpoint attribute value	Identifies the endpoint attribute. – Endpoint ID—Provides the endpoint attribute ID. – Name/Operation/Value—

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	—

Command History

Release	Modification
8.4(4)	This command was introduced.

Usage Guidelines

This command lets you test the retrieval of the set of DAP records configured on the device by specifying authorization attribute value pairs.

test regex

To test a regular expression, use the **test regex** command in privileged EXEC mode.

test regex *input_text regular_expression*

Syntax Description

input_text	Specifies the text that you want to match with the regular expression.
regular_expression	Specifies the regular expression up to 100 characters in length. See the **regex** command for a list of metacharacters you can use in the regular expression.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

The **test regex** command tests a regular expression to make sure it matches what you think it will match.

If the regular expression matches the input text, you see the following message:

```
INFO: Regular expression match succeeded.
```

If the regular expression does not match the input text, you see the following message:

```
INFO: Regular expression match failed.
```

Examples

The following example tests input text against a regular expression:

```
hostname# test regex farscape scape
INFO: Regular expression match succeeded.

hostname# test regex farscape scaper

INFO: Regular expression match failed.
```

Related Commands

Command	Description
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a policy map by associating the traffic class with one or more actions.
policy-map type inspect	Defines special actions for application inspection.
class-map type regex	Creates a regular expression class map.
regex	Creates a regular expression.

test sso-server

To test an SSO server with a trial authentication request, use the **test sso-server** command in privileged EXEC mode.

test sso-server *server-name* **username** *user-name*

Syntax Description

server-name	Specifies the name of the SSO server being tested.
user-name	Specifies the name of a user on the SSO server being tested.

Defaults

No default values or behavior.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Config-webvpn	•	—	•	—	—
Config-webvpn-sso-saml	•	—	•	—	—
Config-webvpn-sso-siteminder	•	—	•	—	—
Global configuration mode	•	—	•	—	—
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

Single sign-on support, available only for WebVPN, lets users access different secure services on different servers without entering a username and password more than once. The **test sso-server** command tests whether an SSO server is recognized and responding to authentication requests.

If the SSO server specified by the *server-name* argument is not found, the following error appears:

`ERROR: sso-server` *server-name* `does not exist`

If the SSO server is found but the user specified by the *user-name* argument is not found, the authentication is rejected.

In the authentication, the ASA acts as a proxy for the WebVPN user to the SSO server. The ASA currently supports the SiteMinder SSO server (formerly Netegrity SiteMinder) and the SAML POST-type SSO server. This command applies to both types of SSO Servers.

Examples

The following example, entered in privileged EXEC mode, successfully tests an SSO server named my-sso-server using a username of Anyuser:

```
hostname# test sso-server my-sso-server username Anyuser
INFO: Attempting authentication request to sso-server my-sso-server for user Anyuser
INFO: STATUS: Success
hostname#
```

The following example shows a test of the same server, but the user, Anotheruser, is not recognized and the authentication fails:

```
hostname# test sso-server my-sso-server username Anotheruser
INFO: Attempting authentication request to sso-server my-sso-server for user Anotheruser
INFO: STATUS: Failed
hostname#
```

Related Commands

Command	Description
max-retry-attempts	Configures the number of times the ASA retries a failed SSO authentication attempt.
policy-server-secret	Creates a secret key used to encrypt authentication requests to a SiteMinder SSO server.
request-timeout	Specifies the number of seconds before a failed SSO authentication attempt times out.
show webvpn sso-server	Displays the operating statistics for all SSO servers configured on the security device.
sso-server	Creates a single sign-on server.
web-agent-url	Specifies the SSO server URL to which the ASA makes SiteMinder SSO authentication requests.

text-color

To set a color for text in the WebVPN title bar on the login, home page, and file access page, use the **text-color** command in webvpn mode. To remove a text color from the configuration and reset the default, use the no form of this command.

text-color [*black* | *white* | *auto***]**

no text-color

Syntax Description

auto	Chooses black or white based on the settings for the secondary-color command. That is, if the secondary color is black, this value is white.
black	The default text color for title bars is white.
white	You can change the color to black.

Defaults

The default text color for the title bars is white.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
config-webvpn	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to set the text color for title bars to black:

```
hostname(config)# webvpn
hostname(config-webvpn)# text-color black
```

Related Commands

Command	Description
secondary-text-color	Sets the secondary text color for the WebVPN login, home page, and file access page.

tftp-server

To specify the default TFTP server and path and filename for use with **configure net** or **write net** commands, use the **tftp-server** command in global configuration mode. To remove the server configuration, use the **no** form of this command. This command supports IPv4 and IPv6 addresses.

tftp-server *interface_name server filename*

no tftp-server [*interface_name server filename*]

Syntax Description

filename	Specifies the path and filename.
interface_name	Specifies the gateway interface name. If you specify an interface other than the highest security interface, a warning message informs you that the interface is unsecure.
server	Sets the TFTP server IP address or name. You can enter an IPv4 or IPv6 address.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	The gateway interface is now required.

Usage Guidelines

The **tftp-server** command simplifies entering the **configure net** and **write net** commands. When you enter the **configure net** or **write net** commands, you can either inherit the TFTP server specified by the **tftp-server** command, or provide your own value. You can also inherit the path in the **tftp-server** command as-is, add a path and filename to the end of the **tftp-server** command value, or override the **tftp-server** command value.

The ASA supports only one **tftp-server** command.

Examples

The following example shows how to specify a TFTP server and then read the configuration from the /temp/config/test_config directory:

```
hostname(config)# tftp-server inside 10.1.1.42 /temp/config/test_config
hostname(config)# configure net
```

Related Commands

Command	Description
configure net	Loads the configuration from the TFTP server and path that you specify.
show running-config tftp-server	Displays the default TFTP server address and the directory of the configuration file.

tftp-server address

To specify the TFTP servers in the cluster, use the **tftp-server address** command in phone-proxy configuration mode. To remove the TFTP server from the Phone Proxy configuration, use the **no** form of this command.

tftp-server address *ip_address* [*port*] **interface** *interface*

no tftp-server address *ip_address* [*port*] **interface** *interface*

Syntax Description

ip_address	Specifies the address of the TFTP server.
interface *interface*	Specifies the interface on which the TFTP server resides. This must be the real address of the TFTP server.
port	(Optional) This is the port the TFTP server is listening in on for the TFTP requests. This should be configured if it is not the default TFTP port 69.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Phone-proxy configuration	•	—	•	—	—

Command History

Release	Modification
8.0(4)	The command was introduced.

Usage Guidelines

The Phone Proxy must have at least one CUCM TFTP server configured. Up to five TFTP servers can be configured for the Phone Proxy.

The TFTP server is assumed to be behind the firewall on the trusted network; therefore, the Phone Proxy intercepts the requests between the IP phones and TFTP server. The TFTP server must reside on the same interface as the CUCM.

Create the TFTP server using the internal IP address and specify the interface on which the TFTP server resides.

On the IP phones, the IP address of the TFTP server must be configured as follows:

- If NAT is configured for the TFTP server, use the TFTP server's global IP address.
- If NAT is not configured for the TFTP server, use the TFTP server's internal IP address.

If the service-policy is applied globally, a classification rule will be created to direct any TFTP traffic reaching the TFTP server on all ingress interfaces, except for the interface on which the TFTP server resides. When the service-policy is applied on a specific interface, a classification rule will be created to direct any TFTP traffic reaching the TFTP server on that specified interface to the phone-proxy module.

If a NAT rule is configured for the TFTP server, it must be configured prior to applying the service-policy so that the global address of the TFTP server is used when installing the classification rule.

Examples

The following example shows the use of the **tftp-server address** command to configure two TFTP servers for the Phone Proxy:

```
hostname(config)# phone-proxy asa_phone_proxy
hostname(config-phone-proxy)# tftp-server address 192.168.1.2 in interface outside
hostname(config-phone-proxy)# tftp-server address 192.168.1.3 in interface outside
hostname(config-phone-proxy)# media-termination address 192.168.1.4 interface inside
hostname(config-phone-proxy)# media-termination address 192.168.1.25 interface outside
hostname(config-phone-proxy)# tls-proxy asa_tlsp
hostname(config-phone-proxy)# ctl-file asactl
hostname(config-phone-proxy)# cluster-mode nonsecure
```

Related Commands

Command	Description
phone-proxy	Configures the Phone Proxy instance.

threat-detection basic-threat

To enable basic threat detection, use the **threat-detection basic-threat** command in global configuration mode. To disable basic threat detection, use the **no** form of this command.

threat-detection basic-threat

no threat-detection basic-threat

Syntax Description

This command has no arguments or keywords.

Defaults

Basic threat detection is enabled by default. The following default rate limits are used:

Table 64-1 Basic Threat Detection Default Settings

	Trigger Settings	
Packet Drop Reason	**Average Rate**	**Burst Rate**
• DoS attack detected • Bad packet format • Connection limits exceeded • Suspicious ICMP packets detected	100 drops/sec over the last 600 seconds.	400 drops/sec over the last 20 second period.
	80 drops/sec over the last 3600 seconds.	320 drops/sec over the last 120 second period.
Scanning attack detected	5 drops/sec over the last 600 seconds.	10 drops/sec over the last 20 second period.
	4 drops/sec over the last 3600 seconds.	8 drops/sec over the last 120 second period.
Incomplete session detected such as TCP SYN attack detected or no data UDP session attack detected (combined)	100 drops/sec over the last 600 seconds.	200 drops/sec over the last 20 second period.
	80 drops/sec over the last 3600 seconds.	160 drops/sec over the last 120 second period.
Denial by access lists	400 drops/sec over the last 600 seconds.	800 drops/sec over the last 20 second period.
	320 drops/sec over the last 3600 seconds.	640 drops/sec over the last 120 second period.
• Basic firewall checks failed • Packets failed application inspection	400 drops/sec over the last 600 seconds.	1600 drops/sec over the last 20 second period.
	320 drops/sec over the last 3600 seconds.	1280 drops/sec over the last 120 second period.
Interface overload	2000 drops/sec over the last 600 seconds.	8000 drops/sec over the last 20 second period.
	1600 drops/sec over the last 3600 seconds.	6400 drops/sec over the last 120 second period.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.
8.2(1)	The burst rate interval changed from 1/60th to 1/30th of the average rate.

Usage Guidelines

When you enable basic threat detection, the ASA monitors the rate of dropped packets and security events due to the following reasons:

- Denial by access lists
- Bad packet format (such as invalid-ip-header or invalid-tcp-hdr-length)
- Connection limits exceeded (both system-wide resource limits, and limits set in the configuration)
- DoS attack detected (such as an invalid SPI, Stateful Firewall check failure)
- Basic firewall checks failed (This option is a combined rate that includes all firewall-related packet drops in this bulleted list. It does not include non-firewall-related drops such as interface overload, packets failed at application inspection, and scanning attack detected.)
- Suspicious ICMP packets detected
- Packets failed application inspection
- Interface overload
- Scanning attack detected (This option monitors scanning attacks; for example, the first TCP packet is not a SYN packet, or the TCP connection failed the 3-way handshake. Full scanning threat detection (see the **threat-detection scanning-threat** command) takes this scanning attack rate information and acts on it by classifying hosts as attackers and automatically shunning them, for example.)
- Incomplete session detection such as TCP SYN attack detected or no data UDP session attack detected

When the ASA detects a threat, it immediately sends a system log message (733100) and alerts ASDM.

Basic threat detection affects performance only when there are drops or potential threats; even in this scenario, the performance impact is insignificant.

Table 64-1 in the "Defaults" section lists the default settings. You can view all these default settings using the **show running-config all threat-detection** command. You can override the default settings for each type of event by using the **threat-detection rate** command.

If an event rate is exceeded, then the ASA sends a system message. The ASA tracks two types of rates: the average event rate over an interval, and the burst event rate over a shorter burst interval. The burst event rate is 1/30th of the average rate interval or 10 seconds, whichever is higher. For each event received, the ASA checks the average and burst rate limits; if both rates are exceeded, then the ASA sends two separate system messages, with a maximum of one message for each rate type per burst period.

Examples

The following example enables basic threat detection, and changes the triggers for DoS attacks:

```
hostname(config)# threat-detection basic-threat
hostname(config)# threat-detection rate dos-drop rate-interval 600 average-rate 60
burst-rate 100
```

Related Commands

Command	Description
clear threat-detection rate	Clears basic threat detection statistics.
show running-config all threat-detection	Shows the threat detection configuration, including the default rate settings if you did not configure them individually.
show threat-detection rate	Shows basic threat detection statistics.
threat-detection rate	Sets the threat detection rate limits per event type.
threat-detection scanning-threat	Enables scanning threat detection.

threat-detection rate

When you enable basic threat detection using the **threat-detection basic-threat** command, you can change the default rate limits for each event type using the **threat-detection rate** command in global configuration mode. If you enable scanning threat detection using the **threat-detection scanning-threat** command, then this command with the **scanning-threat** keyword also sets the when a host is considered to be an attacker or a target; otherwise the default **scanning-threat** value is used for both basic and scanning threat detection. To return to the default setting, use the **no** form of this command.

threat-detection rate {**acl-drop** | **bad-packet-drop** | **conn-limit-drop** | **dos-drop** | **fw-drop** | **icmp-drop** | **inspect-drop** | **interface-drop** | **scanning-threat** | **syn-attack**} **rate-interval** *rate_interval* **average-rate** *av_rate* **burst-rate** *burst_rate*

no threat-detection rate {**acl-drop** | **bad-packet-drop** | **conn-limit-drop** | **dos-drop** | **fw-drop** | **icmp-drop** | **inspect-drop** | **interface-drop** | **scanning-threat** | **syn-attack**} **rate-interval** *rate_interval* **average-rate** *av_rate* **burst-rate** *burst_rate*

Syntax Description

acl-drop	Sets the rate limit for dropped packets caused by denial by access lists.
average-rate *av_rate*	Sets the average rate limit between 0 and 2147483647 in drops/sec.
bad-packet-drop	Sets the rate limit for dropped packets caused by denial by a bad packet format (such as invalid-ip-header or invalid-tcp-hdr-length).
burst-rate *burst_rate*	Sets the burst rate limit between 0 and 2147483647 in drops/sec. The burst rate is calculated as the average rate every *N* seconds, where *N* is the burst rate interval. The burst rate interval is 1/30th of the **rate-interval** *rate_interval* value or 10 seconds, whichever is larger.
conn-limit-drop	Sets the rate limit for dropped packets caused by the connection limits being exceeded (both system-wide resource limits, and limits set in the configuration).
dos-drop	Sets the rate limit for dropped packets caused by a detected DoS attack (such as an invalid SPI, Stateful Firewall check failure).
fw-drop	Sets the rate limit for dropped packets caused by basic firewall check failure. This option is a combined rate that includes all firewall-related packet drops in this command. It does not include non-firewall-related drops such as **interface-drop**, **inspect-drop**, and **scanning-threat**.
icmp-drop	Sets the rate limit for dropped packets caused by denial by suspicious ICMP packets detected.
inspect-drop	Sets the rate limit for dropped packets caused by packets failing application inspection.
interface-drop	Sets the rate limit for dropped packets caused by an interface overload.
rate-interval *rate_interval*	Sets the average rate interval between 600 seconds and 2592000 seconds (30 days). The rate interval is used to determine the length of time over which to average the drops. It also determines the burst threshold rate interval.

scanning-threat	Sets the rate limit for dropped packets caused by a scanning attack detected. This option monitors scanning attacks; for example, the first TCP packet is not a SYN packet, or the TCP connection failed the 3-way handshake. Full scanning threat detection (see the **threat-detection scanning-threat** command) takes this scanning attack rate information and acts on it by classifying hosts as attackers and automatically shunning them, for example.
syn-attack	Sets the rate limit for dropped packets caused by an incomplete session, such as TCP SYN attack or no data UDP session attack.

Defaults

When you enable basic threat detection using the **threat-detection basic-threat** command, the following default rate limits are used:

Table 64-2 Basic Threat Detection Default Settings

	Trigger Settings	
Packet Drop Reason	**Average Rate**	**Burst Rate**
• **dos-drop** • **bad-packet-drop** • **conn-limit-drop** • **icmp-drop**	100 drops/sec over the last 600 seconds.	400 drops/sec over the last 20 second period.
	100 drops/sec over the last 3600 seconds.	400 drops/sec over the last 120 second period.
scanning-threat	5 drops/sec over the last 600 seconds.	10 drops/sec over the last 20 second period.
	5 drops/sec over the last 3600 seconds.	10 drops/sec over the last 120 second period.
syn-attack	100 drops/sec over the last 600 seconds.	200 drops/sec over the last 20 second period.
	100 drops/sec over the last 3600 seconds.	200 drops/sec over the last 120 second period.
acl-drop	400 drops/sec over the last 600 seconds.	800 drops/sec over the last 20 second period.
	400 drops/sec over the last 3600 seconds.	800 drops/sec over the last 120 second period.
• **fw-drop** • **inspect-drop**	400 drops/sec over the last 600 seconds.	1600 drops/sec over the last 20 second period.
	400 drops/sec over the last 3600 seconds.	1600 drops/sec over the last 120 second period.
interface-drop	2000 drops/sec over the last 600 seconds.	8000 drops/sec over the last 20 second period.
	2000 drops/sec over the last 3600 seconds.	8000 drops/sec over the last 120 second period.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.
8.2(1)	The burst rate interval changed from 1/60th to 1/30th of the average rate.

Usage Guidelines

You can configure up to three different rate intervals for each event type.

When you enable basic threat detection, the ASA monitors the rate of dropped packets and security events due to the event types described in the "Syntax Description" table.

When the ASA detects a threat, it immediately sends a system log message (733100) and alerts ASDM.

Basic threat detection affects performance only when there are drops or potential threats; even in this scenario, the performance impact is insignificant.

Table 64-1 in the "Defaults" section lists the default settings. You can view all these default settings using the **show running-config all threat-detection** command.

If an event rate is exceeded, then the ASA sends a system message. The ASA tracks two types of rates: the average event rate over an interval, and the burst event rate over a shorter burst interval. For each event received, the ASA checks the average and burst rate limits; if both rates are exceeded, then the ASA sends two separate system messages, with a maximum of one message for each rate type per burst period.

Examples

The following example enables basic threat detection, and changes the triggers for DoS attacks:

```
hostname(config)# threat-detection basic-threat
hostname(config)# threat-detection rate dos-drop rate-interval 600 average-rate 60
burst-rate 100
```

Related Commands

Command	Description
clear threat-detection rate	Clears basic threat detection statistics.
show running-config all threat-detection	Shows the threat detection configuration, including the default rate settings if you did not configure them individually.
show threat-detection rate	Shows basic threat detection statistics.
threat-detection basic-threat	Enables basic threat detection.
threat-detection scanning-threat	Enables scanning threat detection.

threat-detection scanning-threat

To enable scanning threat detection, use the **threat-detection scanning-threat** command in global configuration mode. To disable scanning threat detection, use the **no** form of this command.

threat-detection scanning-threat [**shun**
[**except** {**ip-address** *ip_address mask* | **object-group** *network_object_group_id*} | **duration** *seconds*]]

no threat-detection scanning-threat [**shun**
[**except** {**ip-address** *ip_address mask* | **object-group** *network_object_group_id*} | **duration** *seconds*]]

Syntax Description

duration *seconds*	Sets the duration of a shun for an attacking host, between 10 and 2592000 seconds. The default length is 3600 seconds (1 hour).
except	Exempts IP addresses from being shunned. Enter this command multiple times to identify multiple IP addresses or network object groups to exempt from shunning.
ip-address *ip_address mask*	Specifies the IP address you want to exempt from shunning.
object-group *network_object_group_id*	Specifies the network object group that you want to exempt from shunning. See the **object-group network** command to create the object group.
shun	Automatically terminates a host connection when the ASA identifies the host as an attacker, in addition to sending syslog message 733101.

Defaults

The default shun duration is 3600 seconds (1 hour).

The following default rate limits are used for scanning attack events:

Table 64-3 Default Rate Limits for Scanning Threat Detection

Average Rate	Burst Rate
5 drops/sec over the last 600 seconds.	10 drops/sec over the last 20 second period.
5 drops/sec over the last 3600 seconds.	10 drops/sec over the last 120 second period.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.
8.0(4)	The **duration** keyword was added.

Usage Guidelines

A typical scanning attack consists of a host that tests the accessibility of every IP address in a subnet (by scanning through many hosts in the subnet or sweeping through many ports in a host or subnet). The scanning threat detection feature determines when a host is performing a scan. Unlike IPS scan detection that is based on traffic signatures, the ASA scanning threat detection feature maintains an extensive database that contains host statistics that can be analyzed for scanning activity.

The host database tracks suspicious activity such as connections with no return activity, access of closed service ports, vulnerable TCP behaviors such as non-random IPID, and many more behaviors.

Caution The scanning threat detection feature can affect the ASA performance and memory significantly while it creates and gathers host- and subnet-based data structure and information.

You can configure the ASA to send system log messages about an attacker or you can automatically shun the host. By default, the system log message 730101 is generated when a host is identified as an attacker.

The ASA identifies attackers and targets when the scanning threat event rate is exceeded. The ASA tracks two types of rates: the average event rate over an interval, and the burst event rate over a shorter burst interval. For each event detected that is considered to be part of a scanning attack, the ASA checks the average and burst rate limits. If either rate is exceeded for traffic sent from a host, then that host is considered to be an attacker. If either rate is exceeded for traffic received by a host, then that host is considered to be a target. You can change the rate limits for scanning threat events using the **threat-detection rate scanning-threat** command.

To view hosts categorized as attackers or as targets, use the **show threat-detection scanning-threat** command.

To view shunned hosts, use the **show threat-detection shun** command. To release a host from being shunned, use the **clear threat-detection shun** command.

Examples

The following example enables scanning threat detection and automatically shuns hosts categorized as attackers, except for hosts on the 10.1.1.0 network. The default rate limits for scanning threat detection are also changed.

```
hostname(config)# threat-detection scanning-threat shun except ip-address 10.1.1.0
255.255.255.0
hostname(config)# threat-detection rate scanning-threat rate-interval 1200 average-rate 10
burst-rate 20
hostname(config)# threat-detection rate scanning-threat rate-interval 2400 average-rate 10
burst-rate 20
```

Related Commands

Command	Description
clear threat-detection shun	Releases a host from being shunned.
show threat-detection scanning-threat	Shows the hosts that are categorized as attackers and targets.

Command	Description
show threat-detection shun	Shows hosts that are currently shunned.
threat-detection basic-threat	Enables basic threat detection.
threat-detection rate	Sets the threat detection rate limits per event type.

threat-detection statistics

To enable advanced threat detection statistics, use the **threat-detection statistics** command in global configuration mode. To disable advanced threat detection statistics, use the **no** form of this command.

Caution Enabling statistics can affect the ASA performance, depending on the type of statistics enabled. The **threat-detection statistics host** command affects performance in a significant way; if you have a high traffic load, you might consider enabling this type of statistics temporarily. The **threat-detection statistics port** command, however, has modest impact.

threat-detection statistics [**access-list** | [**host** | **port** | **protocol** [**number-of-rate** {**1** | **2** | **3**}] | **tcp-intercept** [**rate-interval** *minutes*] [**burst-rate** *attacks_per_sec*] [**average-rate** *attacks_per_sec*]]

no threat-detection statistics [**access-list** | **host** | **port** | **protocol** | **tcp-intercept** [**rate-interval** *minutes*] [**burst-rate** *attacks_per_sec*] [**average-rate** *attacks_per_sec*]]

Syntax Description

access-list	(Optional) Enables statistics for access list denies. Access list statistics are only displayed using the **show threat-detection top access-list** command.
average-rate *attacks_per_sec*	(Optional) For TCP Intercept, sets the average rate threshold for syslog message generation, between 25 and 2147483647. The default is 200 per second. When the average rate is exceeded, syslog message 733105 is generated.
burst-rate *attacks_per_sec*	(Optional) For TCP Intercept, sets the threshold for syslog message generation, between 25 and 2147483647. The default is 400 per second. When the burst rate is exceeded, syslog message 733104 is generated.
host	(Optional) Enables host statistics. The host statistsics accumulate for as long as the host is active and in the scanning threat host database. The host is deleted from the database (and the statistics cleared) after 10 minutes of inactivity.
number-of-rate {**1** | **2** | **3**}	(Optional) Sets the number of rate intervals maintained for host, port, or protocol statistics. The default number of rate intervals is **1**, which keeps the memory usage low. To view more rate intervals, set the value to **2** or **3**. For example, if you set the value to **3**, then you view data for the last 1 hour, 8 hours, and 24 hours. If you set this keyword to **1** (the default), then only the shortest rate interval statistics are maintained. If you set the value to **2**, then the two shortest intervals are maintained.
port	(Optional) Enables port statistics.
protocol	(Optional) Enables protocol statistics.
rate-interval *minutes*	(Optional) For TCP Intercept, sets the size of the history monitoring window, between 1 and 1440 minutes. The default is 30 minutes. During this interval, the ASA samples the number of attacks 30 times.
tcp-intercept	(Optional) Enables statistics for attacks intercepted by TCP Intercept. See the **set connection embryonic-conn-max command**, or the **nat** or **static** commands to enable TCP Intercept.

Defaults

Access list statistics are enabled by default. If you do not specify any options in this command, then you enable all options.

The default **tcp-intercept rate-interval** is 30 minutes. The default **burst-rate** is 400 per second. The default **average-rate** is 200 per second.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	• [1]	—

1. Only TCP Intercept statistics are supported in multiple context mode.

Command History

Release	Modification
8.0(2)	This command was introduced.
8.0(4)/8.1(2)	The **tcp-intercept** keyword was added.
8.1(2)	The **number-of-rates** keyword was added for host statistics, and the default number of rates was changed from 3 to 1.
8.2(1)	The burst rate interval changed from 1/60th to 1/30th of the average rate.
8.3(1)	The **number-of-rates** keyword was added for port and protocol statistics, and the default number of rates was changed from 3 to 1.

Usage Guidelines

If you do not specify any options in this command, then you enable all statistics. To enable only certain statistics, enter this command for each statistic type, and do not also enter the command without any options. You can enter **threat-detection statistics** (without any options) and then customize certain statistics by entering the command with statistics-specific options (for example, **threat-detection statistics host number-of-rate 2**). If you enter **threat-detection statistics** (without any options) and then enter a command for specific statistics, but without any statistic-specific options, then that command has no effect because it is already enabled.

If you enter the **no** form of this command, it removes all **threat-detection statistics** commands, including the **threat-detection statistics access-list** command, which is enabled by default.

View statistics using the **show threat-detection statistics** commands.

You do not need to enable scanning threat detection using the **threat-detection scanning-threat** command; you can configure detection and statistics separately.

Examples

The following example enables scanning threat detection and scanning threat statistics for all types except host:

```
hostname(config)# threat-detection scanning-threat shun except ip-address 10.1.1.0
255.255.255.0
hostname(config)# threat-detection statistics access-list
hostname(config)# threat-detection statistics port
hostname(config)# threat-detection statistics protocol
```

```
hostname(config)# threat-detection statistics tcp-intercept
```

Related Commands

Command	Description
threat-detection scanning-threat	Enables scanning threat detection.
show threat-detection statistics host	Shows the host statistics.
show threat-detection memory	Shows the memory use for advanced threat detection statistics.
show threat-detection statistics port	Shows the port statistics.
show threat-detection statistics protocol	Shows the protocol statistics.
show threat-detection statistics top	Shows the top 10 statistics.

threshold

To set the threshold value for over threshold events in SLA monitoring operations, use the **threshold** command in SLA monitor configuration mode. To restore the default value, use the **no** form of this command.

threshold *milliseconds*

no threshold

Syntax Description

milliseconds	Specifies the number of milliseconds for a rising threshold to be declared. Valid values are from 0 to 2147483647. This value should not be larger than the value set for the timeout.

Defaults

The default threshold is 5000 milliseconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
SLA monitor configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

The threshold value is only used to indicate over threshold events, which do not affect reachability but may be used to evaluate the proper settings for the **timeout** command.

Examples

The following example configures an SLA operation with an ID of 123 and creates a tracking entry with the ID of 1 to track the reachability of the SLA. The frequency of the SLA operation is set to 10 seconds, the threshold to 2500 milliseconds, and the timeout value us set to 4000 milliseconds.

```
hostname(config)# sla monitor 123
hostname(config-sla-monitor)# type echo protocol ipIcmpEcho 10.1.1.1 interface outside
hostname(config-sla-monitor-echo)# threshold 2500
hostname(config-sla-monitor-echo)# timeout 4000
hostname(config-sla-monitor-echo)# frequency 10
hostname(config)# sla monitor schedule 123 life forever start-time now
hostname(config)# track 1 rtr 123 reachability
```

Related Commands

Command	Description
sla monitor	Defines an SLA monitoring operation.
timeout	Defines the amount of time the SLA operation waits for a response.

ticket

To configure the ticket epoch and password for the Cisco Intercompany Media Engine proxy, use the **ticket** command in UC-IME configuration mode. To remove the configuration from the proxy, use the **no** form of this command.

ticket epoch *n* **password** *password*

no ticket epoch *n* **password** *password*

Syntax Description

n	Specifies the length of time between password integrity checks. Enter an integer from 1-255.
password	Sets the password for the Cisco Intercompany Media Engine ticket. Enter a minimum of 10 and a maximum of 64 printable character from the US-ASCII character set. The allowed characters include 0x21 to 0x73 inclusive, and exclude the space character. Only one password can be configured at a time.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
UC-IME configuration	•	—	•	—	—

Command History

Release	Modification
8.3(1)	The command was introduced.

Usage Guidelines

Configures the ticket epoch and password for Cisco Intercompany Media Engine.

The epoch contains an integer that updates each time that the password is changed. When the proxy is configured the first time and a password entered for the first time, enter 1 for the epoch integer. Each time you change the password, increment the epoch to indicate the new password. You must increment the epoch value each time your change the password.

Typically, you increment the epoch sequentially; however, the ASA allows you to choose any value when you update the epoch.

If you change the epoch value, the current password is invalidated and you must enter a new password.

We recommend a password of at least 20 characters. Only one password can be configured at a time.

The ticket password is stored onto flash. The output of the **show running-config uc-ime** command displays ***** instead of the password string.

Note The epoch and password that you configure on the ASA must match the epoch and password configured on the Cisco Intercompany Media Engine server. See the Cisco Intercompany Media Engine server documentation for information.

Examples

The following example shows specify the ticket and epoch in the Cisco Intercompany Media Engine Proxy:

```
hostname(config)# uc-ime local_uc-ime_proxy
hostname(config-uc-ime)# media-termination ime-media-term
hostname(config-uc-ime)# ucm address 192.168.10.30 trunk-security-mode non-secure
hostname(config-uc-ime)# ticket epoch 1 password password1234
hostname(config-uc-ime)# fallback monitoring timer 120
hostname(config-uc-ime)# fallback hold-down timer 30
```

Related Commands

Command	Description
show running-config uc-ime	Shows the running configuration of the Cisco Intercompany Media Engine proxy.
uc-ime	Creates the Cisco Intercompany Media Engine proxy instance on the ASA.

timeout

To set the global maximum idle time duration for various features, use the **timeout** command in global configuration mode. To set all timeouts to the default, use the **no** form of this command. To reset a single feature to its default, reenter the **timeout** command with the default value.

timeout {**conn** | **floating-conn** | **h225** | **h323** | **half-closed** | **icmp** | **mgcp** | **mgcp-pat** | **pat-xlate** | **sip** | **sip-disconnect** | **sip-invite** | **sip_media** | **sip-provisional-media** | **sunrpc** | **tcp-proxy-reassembly** | **udp** | **xlate**} *hh*:*mm*:*ss*

timeout uauth *hh*:*mm*:*ss* [**absolute** | **inactivity**]

no timeout

Syntax Description

absolute	(Optional for **uauth**) Requires a reauthentication after the uauth timeout expires. The **absolute** keyword is enabled by default. To set the uauth timer to timeout after a period of inactivity, enter the **inactivity** keyword instead.
conn	Specifies the idle time after which a connection closes, between 0:5:0 and 1193:0:0. The default is 1 hour (1:0:0). Use **0** to never time out a connection.
floating-conn	When multiple static routes exist to a network with different metrics, the ASA uses the one with the best metric at the time of connection creation. If a better route becomes available, then this timeout lets connections be closed so a connection can be reestablished to use the better route. The default is 0 (the connection never times out). To take advantage of this feature, change the timeout to a new value.
hh:*mm*:*ss*	Specifies the timeout in hours, minutes, and seconds. Use **0** to never time out a connection, if available.
h225	Specifies the idle time after which an H.225 signaling connection closes, between 0:0:0 and 1193:0:0. The default is 1 hour (1:0:0). A timeout value of 0:0:1 disables the timer and closes the TCP connection immediately after all calls are cleared.
h323	Specifies the idle time after which H.245 (TCP) and H.323 (UDP) media connections close, between 0:0:0 and 1193:0:0. The default is 5 minutes (0:5:0). Because the same connection flag is set on both H.245 and H.323 media connections, the H.245 (TCP) connection shares the idle timeout with the H.323 (RTP and RTCP) media connection.
half-closed	Specifies the idle time after which a TCP half-closed connection will be freed, between 0:5:0 (for 9.1(1) and earlier) or 0:0:30 (for 9.1(2) and later) and 1193:0:0. The default is 10 minutes (0:10:0). Use **0** to never time out a connection.
icmp	Specifies the idle time for ICMP, between 0:0:2 and 1193:0:0 The default is 2 seconds (0:0:2).
inactivity	(Optional for **uauth**) Requires uauth reauthentication after the inactivity timeout expires.
mgcp	Sets the idle time after which an MGCP media connection is removed, between 0:0:0 and 1193:0:0. The default is 5 minutes (0:5:0)
mgcp-pat	Sets the absolute interval after which an MGCP PAT translation is removed, between 0:0:0 and 1193:0:0. The default is 5 minutes (0:5:0).

pat-xlate	Specifies the idle time until a PAT translation slot is freed, between 0:0:30 and 0:5:0. The default is 30 seconds. You may want to increase the timeout if upstream routers reject new connections using a freed PAT port because the previous connection might still be open on the upstream device.
sip	Specifies the idle time after which a SIP control connection will be closed, between 0:5:0 and 1193:0:0. The default is 30 minutes (0:30:0). Use **0** to never time out a connection.
sip-disconnect	Specifies the idle time after which a SIP session is deleted if the 200 OK is not received for a CANCEL or a BYE message, between 0:0:1 and 1193:0:0. The default is 2 minutes (0:2:0).
sip-invite	(Optional) Specifies the idle time after which pinholes for PROVISIONAL responses and media xlates will be closed, between 0:1:0 and 1193:0:0. The default is 3 minutes (0:3:0).
sip_media	Specifies the idle time after which a SIP media connection will be closed, between 0:1:0 and 1193:0:0. The default is 2 minutes (0:2:0). Use **0** to never time out a connection. The SIP media timer is used used for SIP RTP/RTCP with SIP UDP media packets, instead of the UDP inactivity timeout.
sip-provisional-media	Specifies timeout value for SIP provisional media connections, between 0:1:0 and 1193:0:0. The default is 2 minutes (0:2:0).
sunrpc	Specifies the idle time after which a SUNRPC slot will be closed, between 0:1:0 and 1193:0:0. The default is 10 minutes (0:10:0). Use **0** to never time out a connection.
tcp-proxy-reassembly	Configures the idle timeout after which buffered packets waiting for reassembly are dropped, between 0:0:10 and 1193:0:0. The default is 1 minute (0:1:0).
uauth	Specifies the duration before the authentication and authorization cache times out and the user has to reauthenticate the next connection, between 0:0:0 and 1193:0:0. The default is 5 minutes (0:5:0). The default timer is **absolute**; you can set the timeout to occur after a period of inactivity by entering the **inactivity** keyword. The **uauth** duration must be shorter than the **xlate** duration. Set to **0** to disable caching. Do not use **0** if passive FTP is used for the connection or if the **virtual http** command is used for web authentication.
udp	Specifies the idle time until a UDP slot is freed, between 0:1:0 and 1193:0:0. The default is 2 minutes (0:2:0). Use **0** to never time out a connection.
xlate	Specifies the idle time until a translation slot is freed, between 0:1:0 and 1193:0:0. The default is 3 hours (3:0:0).

Defaults

The defaults are as follows:

- **conn** *hh*:*mm*:*ss* is 1 hour (**1:0:0**).
- **floating-conn** *hh*:*mm*:*ss* never times out (**0**)
- **h225** *hh*:*mm*:*ss* is 1 hour (**1:0:0**).
- **h323** *hh*:*mm*:*ss* is 5 minutes (**0:5:0**).
- **half-closed** *hh*:*mm*:*ss* is 10 minutes (**0:10:0**).

- **icmp** *hh:mm:ss* is 2 seconds (**0:0:2**)
- **mgcp** *hh:mm:ss* is 5 minutes (**0:5:0**).
- **mgcp-pat** *hh:mm:ss* is 5 minutes (**0:5:0**).
- **rpc** *hh***:***mm***:***ss* is 5 minutes (**0:5:0**).
- **sip** *hh:mm:* is 30 minutes (**0:30:0**).
- **sip-disconnect** *hh:mm:ss* is 2 minutes (**0:2:0**).
- **sip-invite** *hh:mm:ss* is 3 minutes (**0:3:0**).
- **sip_media** *hh:mm:ss* is 2 minutes (**0:2:0**).
- **sip-provisional-media** *hh:mm:ss* is 2 minutes (**0:2:0**).
- **sunrpc** *hh:mm:ss* is 10 minutes (**0:10:0**)
- **tcp-proxy-reassembly** *hh:mm:ss* is 1 minute (**0:1:0**)
- **uauth** *hh:mm:ss* is 5 minutes (**0:5:0**) **absolute**.
- **udp** *hh*:*mm*:*ss* is 2 minutes (**0:02:0**).
- **xlate** *hh***:***mm***:***ss* is 3 hours (**3:0:0**).

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration mode	•	•	•	•	—

Command History

Release	Modification
7.2(1)	The **mgcp-pat**, **sip-disconnect**, and **sip-invite** keywords were added.
7.2(4)/8.0(4)	The **sip-provisional-media** keyword was added.
7.2(5)/8.0(5)/8.1(2)/8.2(1)	The **tcp-proxy-reassembly** keyword was added.
8.2(5)/8.4(2)	The **floating-conn** keyword was added.
8.4(3)	The **pat-xlate** keyword was added.
9.1(2)	The minimum **half-closed** value was lowered to 30 seconds (0:0:30).

Usage Guidelines

The **timeout** command lets you set global timeouts. For some features, the **set connection timeout** command takes precedence for traffic identified in the command.

You can enter multiple keywords and values after the **timeout** command.

The connection timer (**conn**) takes precedence over the translation timer (**xlate**); the translation timer works only after all connections have timed out.

Examples

The following example shows how to configure the maximum idle time durations:

```
hostname(config)# timeout uauth 0:5:0 absolute uauth 0:4:0 inactivity
hostname(config)# show running-config timeout
timeout xlate 3:00:00
timeout conn 1:00:00 half-closed 0:10:00 udp 0:02:00 rpc 0:10:00 h323 0:05:00
sip 0:30:00 sip_media 0:02:00
timeout uauth 0:05:00 absolute uauth 0:04:00 inactivity
```

Related Commands

Command	Description
clear configure timeout	Clears the timeout configuration and resets it to the defaults.
set connection timeout	Sets connection timeouts using Modular Policy Framework.
show running-config timeout	Displays the timeout value of the designated protocol.

timeout (aaa-server host)

To configure the host-specific maximum response time, in seconds, allowed before giving up on establishing a connection with the AAA server, use the **timeout** command in aaa-server host mode. To remove the timeout value and reset the timeout to the default value of 10 seconds, use the **no** form of this command.

timeout *seconds*

no timeout

Syntax Description

seconds	Specifies the timeout interval (1-60 seconds) for the request. This is the time after which the ASA gives up on the request to the primary AAA server. If there is a standby AAA server, the ASA sends the request to the backup server.

Defaults

The default timeout value is 10 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
aaa-server host configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command is valid for all AAA server protocol types.

Use the **timeout** command to specify the length of time during which the ASA attempts to make a connection to a AAA server. Use the **retry-interval** command to specify the amount of time the ASA waits between connection attempts.

The timeout is the total amount of time that the ASA spends trying to complete a transaction with a server. The retry interval determines how often the communication is retried during the timeout period. Thus, if the retry interval is greater than or equal to the timeout value, you will see no retries. If you want to see retries, the retry interval musts be less than thte timeout value.

Examples

The following example configures a RADIUS AAA server named “svrgrp1” on host 1.2.3.4 to use a timeout value of 30 seconds, with a retry interval of 10 seconds. Thus, the ASA tries the communication attempt three times before giving up after 30 seconds.

```
hostname(config)# aaa-server svrgrp1 protocol radius
hostname(config-aaa-server-group)# aaa-server svrgrp1 host 1.2.3.4
```

```
hostname(config-aaa-server-host)# timeout 30
hostname(config-aaa-server-host)# retry-interval 10
hostname(config-aaa-server-host)#
```

Related Commands

Command	Description
aaa-server host	Enters aaa server host configuration mode so you can configure AAA server parameters that are host specific.
clear configure aaa-server	Removes all AAA command statements from the configuration.
show running-config aaa	Displays the current AAA configuration values.

timeout (dns-server-group configuration mode)

To specify the amount of time to wait before trying the next DNS server, use the **timeout** command in dns-server-group configuration mode. To restore the default timeout, use the **no** form of this command.

timeout *seconds*

no timeout [*seconds*]

Syntax Description

seconds	Specifies the timeout in seconds between 1 and 30. The default is 2 seconds. Each time the ASA retries the list of servers, this timeout doubles. Use the **retries** command in dns-server-group configuration mode to configure the number of retries.

Defaults

The default timeout is 2 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Examples

The following example sets the timeout to 1 second for the DNS server group “dnsgroup1”:

```
hostname(config)# dns server-group dnsgroup1
hostname(config-dns-server-group)# dns timeout 1
```

Related Commands

Command	Description
clear configure dns	Removes all user-created DNS server-groups and resets the default server group’s attributes to the default values.
domain-name	Sets the default domain name.
retries	Specifies the number of times to retry the list of DNS servers when the ASA does not receive a response.
show running-config dns server-group	Shows the current running DNS server-group configuration.

timeout (gtp-map)

To change the inactivity timers for a GTP session, use the **timeout** command in GTP map configuration mode, which is accessed by using the **gtp-map** command. Use the **no** form of this command to set these intervals to their default values.

timeout {**gsn** | **pdp-context** | **request** | **signaling** | **t3-response** | **tunnel** } *hh*:*mm*:*ss*

no timeout {**gsn** | **pdp-context** | **request** | **signaling** | **t3-response** | **tunnel** } *hh*:*mm*:*ss*

Syntax Description

hh:*mm*:*ss*	This is the timeout where *hh* specifies the hour, *mm* specifies the minutes, *ss* specifies the seconds, and a colon (:) separates these three components. The value 0 means never tear down immediately.
gsn	Specifies the period of inactivity after which a GSN will be removed.
pdp-context	Specifies the maximum period of time allowed before beginning to receive the PDP context.
request	Specifies the the maximum period of time allowed before beginning to receive the GTP message.
signaling	Specifies the period of inactivity after which the GTP signaling will be removed.
t3-response	Specifies the maximum wait time for a response before a GTP connection is removed.
tunnel	Specifies the period of inactivity after which the GTP tunnel will be torn down.

Defaults

The default is 30 minutes for **gsn**, **pdp-context**, and **signaling**.

The default for **request** is 1 minute.

The default for **tunnel** is 1 hour (in the case where a Delete PDP Context Request is not received).

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
GTP map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The Packet Data Protocol (PDP) context is identified by the Tunnel Identifier (TID), which is a combination of IMSI and NSAPI. Each MS can have up to 15 NSAPIs, allowing it to create multiple PDP contexts each with a different NSAPI, based on application requirements for varied QoS levels.

A GTP tunnel is defined by two associated PDP Contexts in different GSN nodes and is identified with a Tunnel ID. A GTP tunnel is necessary to forward packets between an external packet data network and a mobile station user.

Examples

The following example sets a timeout value for the request queue of 2 minutes:

```
hostname(config)# gtp-map gtp-policy
hostname(config-gtpmap)# timeout request 00:02:00
```

Related Commands

Commands	Description
clear service-policy inspect gtp	Clears global GTP statistics.
debug gtp	Displays detailed information about GTP inspection.
gtp-map	Defines a GTP map and enables GTP map configuration mode.
inspect gtp	Applies a specific GTP map to use for application inspection.
show service-policy inspect gtp	Displays the GTP configuration.

timeout (radius-accounting)

To change the inactivity timers for RADIUS accounting users, use the **timeout** command in radius-accounting parameter configuration mode, which is accessed by using the **inspect radius-accounting** command. Use the **no** form of this command to set these intervals to their default values.

timeout users *hh*:*mm*:*ss*

no timeout users *hh*:*mm*:*ss*

Syntax Description

hh:*mm*:*ss*	This is the timeout where *hh* specifies the hour, *mm* specifies the minutes, *ss* specifies the seconds, and a colon (:) separates these three components. The value 0 means never tear down immediately. The default is one hour.
users	Specifies the timeout for users.

Defaults

The default timeout for users is one hour.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
radius-accounting parameter configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example sets a timeout value for the user of ten minutes:

```
hostname(config)# policy-map type inspect radius-accounting ra
hostname(config-pmap)# parameters
hostname(config-pmap-p)# timeout user 00:10:00
```

Related Commands

Commands	Description
inspect radius-accounting	Sets inspection for RADIUS accounting.
parameters	Sets parameters for an inspection policy map.

timeout (sla monitor)

To set the amount of time the SLA operation waits for a response to the request packets, use the **timeout** command in SLA monitor protocol configuration mode. To restore the default value, use the **no** form of this command.

timeout *milliseconds*

no timeout

Syntax Description

milliseconds	0 to 604800000.

Defaults

The default timeout value is 5000 milliseconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
SLA monitor protocol configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

Use the **frequency** command to set how often the SLA operation sends out the request packets and the **timeout** command to set how long the SLA operation waits to receive a response to those requests. The values specified for the **timeout** command cannot be greater than the value specified for the **frequency** command.

Examples

The following example configures an SLA operation with an ID of 123 and creates a tracking entry with the ID of 1 to track the reachability of the SLA. The frequency of the SLA operation is set to 10 seconds, the threshold to 2500 milliseconds, and the timeout value us set to 4000 milliseconds.

```
hostname(config)# sla monitor 123
hostname(config-sla-monitor)# type echo protocol ipIcmpEcho 10.1.1.1 interface outside
hostname(config-sla-monitor-echo)# threshold 2500
hostname(config-sla-monitor-echo)# timeout 4000
hostname(config-sla-monitor-echo)# frequency 10
hostname(config)# sla monitor schedule 123 life forever start-time now
hostname(config)# track 1 rtr 123 reachability
```

Related Commands

Command	Description
frequency	Specifies the rate at which the SLA operation repeats.
sla monitor	Defines an SLA monitoring operation.

timeout pinhole

To configure the timeout for DCERPC pinholes and override the global system pinhole timeout of two minutes, use the **timeout pinhole** command in parameters configuration mode. Parameters configuration mode is accessible from policy map configuration mode. To disable this feature, use the **no** form of this command.

timeout pinhole *hh:mm:ss*

no timeout pinhole

Syntax Description

hh:mm:ss	The timeout for pinhole connections. Value is between 0:0:1 and 1193:0:0.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to configure the pinhole timeout for pin hole connections in a DCERPC inspection policy map:

```
hostname(config)# policy-map type inspect dcerpc dcerpc_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# timeout pinhole 0:10:00
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

time-range

To enter time-range configuration mode and define a time range that you can attach to traffic rules, or an action, use the **time-range** command in global configuration mode. To disable, use the **no** form of this command.

time-range *name*

no time-range *name*

Syntax Description

name	Name of the time range. The name must be 64 characters or less.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Creating a time range does not restrict access to the device. The **time-range** command defines the time range only. After a time range is defined, you can attach it to traffic rules or an action.

To implement a time-based ACL, use the **time-range** command to define specific times of the day and week. Then use the with the **access-list extended time-range** command to bind the time range to an ACL.

The time range relies on the system clock of the ASA; however, the feature works best with NTP synchronization.

Examples

The following example creates a time range named “New_York_Minute” and enters time range configuration mode:

```
hostname(config)# time-range New_York_Minute
hostname(config-time-range)#
```

After you have created a time range and entered time-range configuration mode, you can define time range parameters with the **absolute** and **periodic** commands. To restore default settings for the **time-range** command **absolute** and **periodic** keywords, use the **default** command in time-range configuration mode.

To implement a time-based ACL, use the **time-range** command to define specific times of the day and week. Then use the with the **access-list extended** command to bind the time range to an ACL. The following example binds an ACL named "Sales" to a time range named "New_York_Minute":

```
hostname(config)# access-list Sales line 1 extended deny tcp host 209.165.200.225 host
209.165.201.1 time-range New_York_Minute
hostname(config)#
```

See the **access-list extended** command for more information about ACLs.

Related Commands

Command	Description
absolute	Defines an absolute time when a time range is in effect.
access-list extended	Configures a policy for permitting or denying IP traffic through the ASA.
default	Restores default settings for the **time-range** command **absolute** and **periodic** keywords.
periodic	Specifies a recurring (weekly) time range for functions that support the time-range feature.

timeout secure-phones

To configure the idle timeout after which the secure-phone entry is removed from the Phone Proxy database, use the **timeout secure-phones** command in phone-proxy configuration mode. To set the timeout value back to the default of 5 minutes, use the **no** form of this command.

timeout secure-phones *hh:mm:ss*

no timeout secure-phones *hh:mm:ss*

Syntax Description

hh:mm:ss	Specifies the idle timeout after which the object is removed. The default is 5 minutes.

Defaults

The default value for secure phone timeout is 5 minutes.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
8.0(4)	The command was introduced.

Usage Guidelines

Since secure phones always request a CTL file upon bootup, the Phone Proxy creates a database that marks the phone as secure. The entries in the secure phone database are removed after a specified configured timeout (via the **timeout secure-phones** command). The entry's timestamp is updated for each registration refresh the Phone Proxy receives for SIP phones and KeepAlives for SCCP phones.

The default value for the **timeout secure-phones** command is 5 minutes. Specify a value that is greater than the maximum timeout value for SCCP KeepAlives and SIP Register refresh. For example, if the SCCP Keepalives are configured for 1 minute intervals and the SIP Register Refresh is configured for 3 minutes, configure this timeout value greater than 3 minutes.

Examples

The following example shows the use of the **timeout secure-phones** command to configure the Phone Proxy to timeout entries in the secure phone database after 3 minutes:

```
hostname(config)# phone-proxy asa_phone_proxy
hostname(config-phone-proxy)# tftp-server address 192.168.1.2 in interface outside
hostname(config-phone-proxy)# tftp-server address 192.168.1.3 in interface outside
hostname(config-phone-proxy)# media-termination address 192.168.1.4
hostname(config-phone-proxy)# tls-proxy asa_tlsp
hostname(config-phone-proxy)# ctl-file asactl
```

```
hostname(config-phone-proxy)# timeout secure-phones 00:03:00
```

Related Commands

Command	Description
phone-proxy	Configures the Phone Proxy instance.

timers lsa arrival

To set the minimum interval at which the ASA accepts the same LSA from OSPFv3 neighbors, use the **timers lsa arrival** command in IPv6 router configuration mode. To restore the default value, use the **no** form of this command.

timers lsa arrival *milliseconds*

no timers lsa arrival *milliseconds*

Syntax Description

milliseconds	Specifies the minimum delay in milliseconds that must pass between acceptance of the same LSA that is arriving between neighbors. Valid values are from 0 to 600,000 milliseconds.

Defaults

The default is 1000 millliseconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
IPv6 router configuration	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Use this command to indicate the minimum interval that must pass between acceptance of the same LSA that is arriving from neighbors.

Examples

The following example sets the minimum interval for accepting the same LSA at 2000 milliseconds:

```
hostname(config-if)# ipv6 router ospf 1
hostname(config-rtr)# log-adjacency-changes
hostname(config-rtr)# timers lsa arrival 2000
```

Related Commands

Command	Description
ipv6 router ospf	Enters router configuration mode for OSPFv3.
show ipv6 ospf	Displays general information about the OSPFv3 routing processes.
timers pacing flood	Configures LSA flood packet pacing for OSPFv3 routing processes.

timers lsa-group-pacing (OSPFv2)

To specify the interval at which OSPF link-state advertisements (LSAs) are collected into a group and refreshed, checksummed, or aged, use the **timers lsa-group-pacing** command in router configuration mode. To restore the default value, use the **no** form of this command.

timers lsa-group-pacing *seconds*

no timers lsa-group-pacing [*seconds*]

Syntax Description

seconds	The interval at which OSPF link-state advertisements (LSAs) are collected into a group and refreshed, checksummed, or aged. Valid values are from 10 to 1800 seconds.

Defaults

The default interval is 240 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

To change the interval at which the OSPF link-state advertisements (LSAs) are collected into a group and refreshed, checksummed, or aged, use the **timers lsa-group-pacing** *seconds* command. To return to the default timer values, use the **no timers lsa-group-pacing** command.

Examples

The following example sets the group processing interval of LSAs to 500 seconds:

```
hostname(config-rtr)# timers lsa-group-pacing 500
hostname(config-rtr)#
```

Related Commands

Command	Description
router ospf	Enters router configuration mode.
show ospf	Displays general information about the OSPF routing processes.
timers spf	Specifies the shortest path first (SPF) calculation delay and hold time

timers pacing flood (OSPFv3)

To configure LSA flood packet pacing, use the **timers pacing flood** command in IPv6 router configuration mode. To restore the default flood packet pacing value, use the **no** form of this command.

timers pacing flood *milliseconds*

no timers pacing flood *milliseconds*

Syntax Description

milliseconds	Specifies the time in milliseconds at which LSAs in the flooding queue are paced in-between updates. The configurable range is from 5 to 100 milliseconds.

Defaults

The default is 33 millliseconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
IPv6 router configuration	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Use this command to configure LSA flood packet pacing.

Examples

The following example configures LSA flood packet pacing updates to occur in 20-millisecond intervals for OSPFv3:

```
hostname(config-if)# ipv6 router ospf 1
hostname(config-rtr)# timers pacing flood 20
```

Related Commands

Command	Description
ipv6 router ospf	Enters IPv6 router configuration mode.
timers pacing lsa-group	Specifies the interval at which OSPFv3 LSAs are collected into a group and refreshed, check summed, or aged.

timers pacing lsa-group (OSPFv3)

To specify the interval at which OSPFv3 LSAs are collected into a group and refreshed, check summed, or aged, use the **timers pacing lsa-group** command in IPv6 router configuration mode. To restore the default value, use the **no** form of this command.

timers pacing lsa-group *seconds*

no timers pacing lsa-group [*seconds*]

Syntax Description

seconds	Specifies the number of seconds in the interval at which LSAs are collected into a group and refreshed, check summed, or aged. Valid values are from 10 to 1800 seconds.

Defaults

The default interval is 240 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
IPv6 router configuration	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

Use this command to indicate the interval at which the OSPFv3 LSAs are collected into a group and refreshed, check summed, or aged.

Examples

The following example configures OSPFv3 group packet pacing updates between LSA groups to occur in 300-seconds intervals for OSPFv3 routing process 1:

```
hostname(config-if)# ipv6 router ospf 1
hostname(config-rtr)# timers pacing lsa-group 300
```

Related Commands

Command	Description
ipv6 router ospf	Enters IPv6 router configuration mode.
show ipv6 ospf	Displays general information about the OSPFv3 routing processes.
timers pacing flood	Configures LSA flood packet pacing for OSPFv3 routing processes.

timers spf

To specify the shortest path first (SPF) calculation delay and hold time, use the **timers spf** command in router configuration mode. To restore the default values, use the **no** form of this command.

timers spf *delay holdtime*

no timers spf [*delay holdtime*]

Syntax Description

delay	Specifies the delay time between when OSPF receives a topology change and when it starts a shortest path first (SPF) calculation in seconds, from 1 to 65535.
holdtime	The hold time between two consecutive SPF calculations in seconds; valid values are from 1 to 65535.

Defaults

The defaults are as follows:

- *delay* is 5 seconds.
- *holdtime* is 10 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Router configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

To configure the delay time between when the OSPF protocol receives a topology change and when it starts a calculation, and the hold time between two consecutive SPF calculations, use the **timers spf** command. To return to the default timer values, use the **no timers spf** command.

Examples

The following example sets the SPF calculation delay to 10 seconds and the SPF calculation hold time to 20 seconds:

```
hostname(config-router)# timers spf 10 20
hostname(config-router)#
```

Related Commands

Command	Description
router ospf	Enters router configuration mode.
show ospf	Displays general information about the OSPF routing processes.
timers lsa-group-pacing	Specifies the interval at which OSPF link-state advertisements (LSAs) are collected and refreshed, checksummed, or aged.

timers throttle

To configure LSA or SPF OSPFv3 throttling, use the **timers throttle** command in IPv6 router configuration mode. To remove the throttling configuration, use the **no** form of this command.

timers throttle [**lsa** | **spf**] *milliseconds1 milliseconds2 milliseconds3*

no timers throttle [**lsa** | **spf**]

Syntax Description

lsa	Configures OSPFv3 LSA throttling.
milliseconds1	Specifies the delay in milliseconds to generate the first occurrence of the LSA. Specifies the delay in milliseconds to receive a change to the SPF calculation.
milliseconds2	Specifies the maximum delay in milliseconds to originate the same LSA. Specifies the delay in milliseconds between the first and second SPF calculations.
milliseconds3	Specifies the minimum delay in milliseconds to originate the same LSA. Specifies the maximum wait time in milliseconds for SPF calculations.
spf	Configures OSPFv3 SPF throttling.

Defaults

LSA throttling:

- For *milliseconds1*, the default value is 0 milliseconds.
- For *millseconds2*, the default value is 5000 milliseconds.
- For *milleseconds3*, the default value is 5000 milliseconds.

SPF throttling:

- For *milliseconds1*, the default value is 5000 milliseconds.
- For *millseconds2*, the default value is 10000 milliseconds.
- For *milleseconds3*, the default value is 10000 milliseconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
IPv6 router configuration	•	—	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

LSA and SPF throttling provide a dynamic mechanism to slow down LSA updates in OSPFv3 during times of network instability and allow faster OSPFv3 convergence by providing LSA rate limiting in milliseconds.

For LSA throttling, if the minimum or maximum time is less than the first occurrence value, then OSPFv3 automatically corrects to the first occurrence value. Similarly, if the maximum delay specified is less than the minimum delay, then OSPFv3 automatically corrects to the minimum delay value.

For SPF throttling, if *milliseconds2* or *milliseconds3* is less than *milliseconds1*, then OSPFv3 automatically corrects to the *milliseconds1* value. Similarly, if *milliseconds3* is less than *milliseconds2*, then OSPFv3 automatically corrects to the *milliseconds2* value.

Examples

The following example configures OSPFv3 LSA throttling in milleseconds:

```
hostname(config)# ipv6 router ospf 10
hostname(config-rtr)# timers throttle lsa 100 4000 5000
```

For LSA throttling, the following example shows the automatic correction that occurs if the maximum delay value specified is less than the minimum delay value:

```
hostname(config)# ipv6 router ospf 10
hostname(config-rtr)# timers throttle lsa 100 50 50
% OSPFv3: Throttle timers corrected to: 100 100 100
hostname(config-rtr)# show running-config ipv6
ipv6 router ospf 10
 timers throttle lsa 100 100 100
```

The following example configures OSPFv3 SPF throttling in milleseconds:

```
hostname(config)# ipv6 router ospf 10
hostname(config-rtr)# timers throttle spf 6000 12000 14000
```

For SPF throttling, the following example shows the automatic correction that occurs if the maximum delay value specified is less than the minimum delay value:

```
hostname(config)# ipv6 router ospf 10
hostname(config-rtr)# timers throttle spf 100 50 50
% OSPFv3: Throttle timers corrected to: 100 100 100
hostname(config-rtr)# show running-config ipv6
ipv6 router ospf 10
 timers throttle spf 100 100 100
```

Related Commands

Command	Description
ipv6 router ospf	Enters IPv6 router configuration mode.
show ipv6 ospf	Displays general information about the OSPFv3 routing processes.
timers lsa-group-pacing	Specifies the interval at which OSPFv3 LSAs are collected and refreshed, checksummed, or aged.

title

To customize the title of the WebVPN page displayed to WebVPN users when they connect to the security appliance, use the **title** command from webvpn customization mode:

title {**text** | **style**} *value*

[**no**] **title** {**text** | **style**} *value*

To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command.

Syntax Description

text	Specifies you are changing the text.
style	Specifies you are changing the style.
value	The actual text to display (maximum 256 characters), or Cascading Style Sheet (CSS) parameters (maximum 256 characters).

Defaults

The default title text is “WebVPN Service”.

The default title style is:

background-color:white;color:maroon;border-bottom:5px groove #669999;font-size:larger; vertical-align:middle;text-align:left;font-weight:bold

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Webvpn customization	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

To have no title, use the **title text** command without a *value* argument.

The **style** option is expressed as any valid Cascading Style Sheet (CSS) parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium (W3C) website at www.w3.org. Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at www.w3.org/TR/CSS21/propidx.html.

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.
- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma separated entry indicates the level of intensity of each color to combine with the others.
- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.

Note To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

Examples

In the following example, the title is customized with the text "Cisco WebVPN Service":

```
hostname(config)# webvpn
hostname(config-webvpn)# customization cisco
hostname(config-webvpn-custom)# title text Cisco WebVPN Service
```

Related Commands

Command	Description
logo	Customizes the logo on the WebVPN page.
page style	Customizes the WebVPN page using Cascading Style Sheet (CSS) parameters.

CHAPTER 65

tls-proxy through type echo Commands

tls-proxy

To configure a TLS proxy instance in TLS configuration mode or to set the maximum sessions, use the **tls-proxy** command in global configuration mode. To remove the configuration, use the **no** form of this command.

tls-proxy [**maximum-sessions** *max_sessions* | *proxy_name*] [**noconfirm**]

no tls-proxy [**maximum-sessions** *max_sessions* | *proxy_name*] [**noconfirm**]

Syntax Description

max_sessions *max_sessions*	Specifies the maximum number of TLS proxy sessions to support on the platform.
noconfirm	Runs the **tls-proxy** command without requiring confirmation.
proxy_name	Specifies the name of the TLS proxy instance.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Use the **tls-proxy** command to enter TLS proxy configuration mode to create a TLS proxy instance, or to set the maximum sessions supported on the platform.

Examples

The following example shows how to create a TLS proxy instance:

```
hostname(config)# tls-proxy my_proxy
hostname(config-tlsp)# server trust-point ccm_proxy
hostname(config-tlsp)# client ldc issuer ldc_server
hostname(config-tlsp)# client ldc keypair phone_common
```

Related Commands

Commands	Description
client	Defines a cipher suite and sets the local dynamic certificate issuer or keypair.
ctl-provider	Defines a CTL provider instance and enters provider configuration mode.
server trust-point	Specifies the proxy trustpoint certificate to be presented during the TLS handshake.
show tls-proxy	Shows the TLS proxies.

tos

To define a type of service byte in the IP header of an SLA operation request packet, use the **tos** command in SLA monitor protocol configuration mode. To restore the default value, use the **no** form of this command.

tos *number*

no tos

Syntax Description

number	The service type value to be used in the IP header. Valid values are from 0 to 255.

Defaults

The default type of service value is 0.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
SLA monitor protocol configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This field contains information such as delay, precedence, reliability, and so on. This is can be used by other routers on the network for policy routing and features such as Committed Access Rate.

Examples

The following example configures an SLA operation with an ID of 123 that uses an ICMP echo request/response time probe operation. It sets the payload size of the echo request packets to 48 bytes, the number of echo requests sent during an SLA operation to 5, and the type of service byte to 80.

```
hostname(config)# sla monitor 123
hostname(config-sla-monitor)# type echo protocol ipIcmpEcho 10.1.1.1 interface outside
hostname(config-sla-monitor-echo)# num-packets 5
hostname(config-sla-monitor-echo)# request-data-size 48
hostname(config-sla-monitor-echo)# tos 80
hostname(config-sla-monitor-echo)# timeout 4000
hostname(config-sla-monitor-echo)# threshold 2500
hostname(config-sla-monitor-echo)# frequency 10
hostname(config)# sla monitor schedule 123 life forever start-time now
hostname(config)# track 1 rtr 123 reachability
```

Related Commands

Command	Description
num-packets	Specifies the number of request packets to send during an SLA operation.
request-data-size	Specifies the size of the request packet payload.
sla monitor	Defines an SLA monitoring operation.
type echo	Configures the SLA operation as an echo response time probe operation.

traceroute

To determine the route packets will take to their destination, use the **traceroute** command.

traceroute *destination_ip* | *hostname* [**source** *source_ip* | *source-interface*] [**numeric**] [**timeout** *timeout_value*] [**probe** *probe_num*] [**ttl** *min_ttl max_ttl*] [**port** *port_value*] [**use-icmp**]

Syntax Description

destination_ip	Specifies the destination IP address for the traceroute.
hostname	The hostname of the host to which the route has to be traced. If the hostname is specified, define it with the **name** command, or configure a DNS server to enable traceroute to resolve the hostname to an IP address. Supports DNS domain names such as www.example.com.
source	Specifies an IP address or interface is used as the source for the trace packets.
source_ip	Specifies the source IP address for the packet trace. This IP address must be the IP address of one of the interfaces. In transparent mode, it must be the management IP address of the security appliance.
source_interface	Specifies the source interface for the packet trace. When specified, the IP address of the source interface is used.
numeric	Specifies the output print only the IP addresses of the intermediate gateways. If this keyword is not specified the traceroute attempts to look up the hostnames of the gateways reached during the trace.
timeout	Specifies a timeout value is used
timeout_value	Specifies the amount of time in seconds to wait for a response before the connection times out. The default is three seconds.
probe *probe_num*	The number of probes to be sent at each TTL level. The default count is 3.
ttl	Keyword to specify the range of Time To Live values to use in the probes.
min_ttl	The TTL value for the first probes. The default is 1, but it can be set to a higher value to suppress the display of known hops.
max-ttl	The largest TTL value that can be used. The default is 30. The command terminates when the traceroute packet reaches the destination or when the value is reached.
port *port_value*	The destination port used by the User Datagram Protocol (UDP) probe messages. The default is 33434.
use-icmp	Specifies the use of ICMP probe packets instead of UDP probe packets.

Defaults

This command has no default settings.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Priveleged EXEC	•	•	•	•	•

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

The traceroute command prints the result of each probe sent. Every line of output corresponds to a TTL value in increasing order. The following are the output symbols printed by the **traceroute** command:

Output Symbol	Description
*	No response was received for the probe within the timeout period.
nn msec	For each node, the round-trip time (in milliseconds) for the specified number of probes.
!N.	ICMP network unreachablee.
!H	ICMP host unreachable.
!P	ICMP protocol unreachable.
!A	ICMP administratively prohibited.
?	Unknown ICMP error.

Examples

The following example shows traceroute output that results when a destination IP address has been specified:

```
hostname# traceroute 209.165.200.225

Tracing the route to 209.165.200.225

 1  10.83.194.1 0 msec 10 msec 0 msec
 2  10.83.193.65 0 msec 0 msec 0 msec
 3  10.88.193.101 0 msec 10 msec 0 msec
 4  10.88.193.97 0 msec 0 msec 10 msec
 5  10.88.239.9 0 msec 10 msec 0 msec
 6  10.88.238.65 10 msec 10 msec 0 msec
 7 172.16.7.221 70 msec 70 msec 80 msec
 8 209.165.200.225 70 msec 70 msec 70 msec
```

Related Commands

Command	Description
capture	Captures packet information, including trace packets.
show capture	Displays the capture configuration when no options are specified.
packet-tracer	Enables packet tracing capabilities.

track rtr

To track the reachability of an SLA operation, use the **track rtr** command in global configuration mode. To remove the SLA tracking, use the **no** form of this command.

track *track-id* **rtr** *sla-id* **reachabilitity**

no track *track-id* **rtr** *sla-id* **reachabilitity**

Syntax Description

reachability	Specifies that the reachability of the object is being tracked.
sla-id	The ID of the SLA used by the tracking entry.
track-id	Creates a tracking entry object ID. Valid values are from 1 to 500.

Defaults

SLA tracking is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

The **track rtr** command creates a tracking entry object ID and specifies the SLA used by that tracking entry.

Every SLA operation maintains an operation return-code value, which is interpreted by the tracking process. The return code may be OK, Over Threshold, or several other return codes. Table 65-1 displays the reachability state of an object with respect to these return codes.

Table 65-1 SLA Tracking Return Codes

Tracking	Return Code	Track State
Reachability	OK or Over Threshold	Up
	Any other code	Down

Examples

The following example configures an SLA operation with an ID of 123 and creates a tracking entry with the ID of 1 to track the reachability of the SLA:

```
hostname(config)# sla monitor 123
```

```
hostname(config-sla-monitor)# type echo protocol ipIcmpEcho 10.1.1.1 interface outside
hostname(config-sla-monitor-echo)# timeout 1000
hostname(config-sla-monitor-echo)# frequency 3
hostname(config)# sla monitor schedule 123 life forever start-time now
hostname(config)# track 1 rtr 123 reachability
```

Related Commands

Command	Description
route	Configures a static route.
sla monitor	Defines an SLA monitoring operation.

traffic-forward cxsc

To enable a traffic-forwarding interface for the ASA CX module for demonstration purposes, use the **traffic-forward cxsc** command in interface configuration mode. To disable traffic-forwarding, use the **no** form of this command.

traffic-forward cxsc monitor-only

no traffic-forward cxsc monitor-only

Syntax Description

monitor-only	Sets the ASA CX module to monitor-only mode. In monitor-only mode, the ASA CX module can process traffic for demonstration purposes, but then drops the traffic. You cannot use the traffic-forwarding interface for production purposes.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Interface configuration	—	•	•	—	—

Command History

Release	Modification
9.1(2)	We introduced this command.

Usage Guidelines

For testing and demonstration purposes, you can configure an ASA interface to be a traffic-forwarding interface, where all traffic received is forwarded directly to the ASA CX module without any ASA processing. This feature is only supported in monitor-only mode. In this mode, the ASA CX module inspects the traffic as usual, makes policy decisions, and generates events. However, because the packets are read-only copies, the module actions do not affect the actual traffic. Instead, the module drops the copies after inspection.

See the following guidelines:

- You cannot configure both monitor-only mode and normal inline mode at the same time on the ASA. Only one type of security policy is allowed.
- The following features are not supported in monitor-only mode:
  - Deny policies
  - Active authentication
  - Decryption policies

- The ASA CX does not perform packet buffering in monitor-only mode, and events will be generated on a best effort basis. For example, some events, such as ones with long URLs spanning packet boundaries, may be impacted by the lack of buffering.
- Be sure to configure both the ASA policy and the ASA CX to have matching modes: both in monitor-only mode.
- The ASA must be transparent mode.
- You can configure only one interface as a traffic-forwarding interface. Other ASA interfaces can be used as normal.
- Traffic-forwarding interfaces must be physical interfaces, not VLANs or BVIs. The physical interface also cannot have any VLANs associated with it.
- Traffic-forwarding interfaces cannot be used for ASA traffic; you cannot name them or configure them for ASA features, including failover or management-only.

Examples

The following example makes GigabitEthernet 0/5 a traffic-forwarding interface:

```
interface gigabitethernet 0/5
  no nameif
  traffic-forward cxsc monitor-only
  no shutdown
```

Related Commands

Command	Description
interface	Enters interface configuration mode.

traffic-non-sip

To allow non-SIP traffic using the well-known SIP signaling port, use the **traffic-non-sip** command in parameters configuration mode. Parameters configuration mode is accessible from policy map configuration mode. To disable this feature, use the **no** form of this command.

traffic-non-sip

no traffic-non-sip

Syntax Description

This command has no arguments or keywords.

Defaults

This command is enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to allow non-SIP traffic using the well-known SIP signaling port in a SIP inspection policy map:

```
hostname(config)# policy-map type inspect sip sip_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# traffic-non-sip
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

transfer-encoding

To restrict HTTP traffic by specifying a transfer encoding type, use the **transfer-encoding** command in HTTP map configuration mode, which is accessible using the **http-map** command. To disable this feature, use the **no** form of this command.

transfer-encoding type {**chunked** | **compress** | **deflate** | **gzip** | **identity** | **default**} **action** {**allow** | **reset** | **drop**} [**log**]

no transfer-encoding type {**chunked** | **compress** | **deflate** | **gzip** | **identity** | **default**} **action** {**allow** | **reset** | **drop**} [**log**]

Syntax Description

action	Specifies the action taken when a connection using the specified transfer encoding type is detected.
allow	Allows the message.
chunked	Identifies the transfer encoding type in which the message body is transferred as a series of chunks.
compress	Identifies the transfer encoding type in which the message body is transferred using UNIX file compression.
default	Specifies the default action taken by the ASA when the traffic contains a supported request method that is not on a configured list.
deflate	Identifies the transfer encoding type in which the message body is transferred using zlib format (RFC 1950) and deflate compression (RFC 1951).
drop	Closes the connection.
gzip	Identifies the transfer encoding type in which the message body is transferred using GNU zip (RFC 1952).
identity	Identifies connections in which the message body is no transfer encoding is performed.
log	(Optional) Generates a syslog.
reset	Sends a TCP reset message to client and server.
type	Specifies the type of transfer encoding to be controlled through HTTP application inspection.

Defaults

This command is disabled by default. When the command is enabled and a supported transfer encoding type is not specified, the default action is to allow the connection without logging. To change the default action, use the **default** keyword and specify a different default action.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
HTTP map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

When you enable the **transfer-encoding** command, the ASA applies the specified action to HTTP connections for each supported and configured transfer encoding type.

The ASA applies the **default** action to all traffic that does *not* match the transfer encoding types on the configured list. The preconfigured **default** action is to **allow** connections without logging.

For example, given the preconfigured default action, if you specify one or more encoding types with the action of **drop** and **log**, the ASA drops connections containing the configured encoding types, logs each connection, and allows all connections for the other supported encoding types.

If you want to configure a more restrictive policy, change the default action to **drop** (or **reset**) and **log** (if you want to log the event). Then configure each permitted encoding type with the **allow** action.

Enter the **transfer-encoding** command once for each setting you wish to apply. You use one instance of the **transfer-encoding** command to change the default action and one instance to add each encoding type to the list of configured transfer encoding types.

When you use the **no** form of this command to remove an application category from the list of configured application types, any characters in the command line after the application category keyword are ignored.

Examples

The following example provides a permissive policy, using the preconfigured default, which allows all supported application types that are not specifically prohibited.

```
hostname(config)# http-map inbound_http
hostname(config-http-map)# transfer-encoding gzip drop log
hostname(config-http-map)#
```

In this case, only connections using GNU zip are dropped and the event is logged.

The following example provides a restrictive policy, with the default action changed to reset the connection and to log the event for any encoding type that is not specifically allowed.

```
hostname(config)# http-map inbound_http
hostname(config-http-map)# port-misuse default action reset log
hostname(config-http-map)# port-misuse identity allow
hostname(config-http-map)#
```

In this case, only connections using no transfer encoding are allowed. When HTTP traffic for the other supported encoding types is received, the ASA resets the connection and creates a syslog entry.

Related Commands

Commands	Description
class-map	Defines the traffic class to which to apply security actions.
debug appfw	Displays detailed information about traffic associated with enhanced HTTP inspection.
http-map	Defines an HTTP map for configuring enhanced HTTP inspection.
inspect http	Applies a specific HTTP map to use for application inspection.
policy-map	Associates a class map with specific security actions.

trustpoint (SSO Server)

To specify the name of a trustpoint that identifies the certificate to be sent to the SAML POST-type SSO server, use the **trustpoint** command in config-webvpn-sso-saml mode. To eliminate a trustpoint specification, use the **no** form of this command.

trustpoint *trustpoint-name*

no trustpoint *trustpoint-name*

Syntax Description

trustpoint-name	Specifies the name of the trustpoint to use.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Config webvpn sso saml	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command is introduced.

Usage Guidelines

Single sign-on support, available only for WebVPN, lets users access different secure services on different servers without entering a username and password more than once. The ASA currently supports the SAML POST-type SSO server and the SiteMinder-type of SSO server.

This command applies only to SAML-type SSO Servers.

A trustpoint represents a Certificate Authority identity, based on a CA-issued certificate that can be relied upon as being valid without the need for validation testing, especially a public-key certificate used to provide the first public key in a certification path.

Examples

The following example enters config-webvpn-sso-saml mode and names a trustpoint for identifying the certificate to be sent to the SAML POST type SSO Server:

```
hostname(config-webvpn)# sso server
hostname(config-webvpn-sso-saml)# trustpoint mytrustpoint
```

Related Commands

Command	Description
crypto ca trustpoint	Manages trustpoint information.
show webvpn sso server	Displays the operating statistics for all SSO servers configured on the security device.
sso server	Creates, names, and specifies type for an SSO server.

tsig enforced

To require a TSIG resource record to be present, use the **tsig enforced** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

tsig enforced action {**drop** [**log**] | **log**}

no tsig enforced [**action** {**drop** [**log**] | **log**}]

Syntax Description

drop	Drops the packet if TSIG is not present.
log	Generates a system message log.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command enables monitoring and enforcement of TSIG presence in DNS transactions.

Examples

The following example shows how to enable TSIG enforcement in a DNS inspection policy map:

```
hostname(config)# policy-map type inspect dns preset_dns_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# tsig enforced action log
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

ttl-evasion-protection

To enable the Time-To-Live evasion protection, use the **ttl-evasion-protection** command in tcp-map configuration mode. To remove this specification, use the **no** form of this command.

ttl-evasion-protection

no ttl-evasion-protection

Syntax Description

This command has no arguments or keywords.

Defaults

TTL evasion protection offered by the ASA is enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tcp-map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **tcp-map** command is used along with the Modular Policy Framework infrastructure. Define the class of traffic using the **class-map** command and customize the TCP inspection with **tcp-map** commands. Apply the new TCP map using the **policy-map** command. Activate TCP inspection with **service-policy** commands.

Use the **tcp-map** command to enter tcp-map configuration mode. Use the **ttl-evasion-protection** command in tcp-map configuration mode to prevent attacks that attempt to evade security policy.

For instance, an attacker can send a packet that passes policy with a very short TTL. When the TTL goes to zero, a router between the ASA and the endpoint drops the packet. It is at this point that the attacker can send a malicious packet with a long TTL that appears to the ASA to be a retransmission and is passed. To the endpoint host, however, it is the first packet that has been received by the attacker. In this case, an attacker is able to succeed without security preventing the attack. Enabling this feature prevents such attacks.

Examples

The following example shows how to disable TTL evasion protection on flows from network 10.0.0.0 to 20.0.0.0:

```
hostname(config)# access-list TCP1 extended permit tcp 10.0.0.0 255.0.0.0 20.0.0.0
255.0.0.0
hostname(config)# tcp-map tmap
```

```
hostname(config-tcp-map)# no ttl-evasion-protection
hostname(config)# class-map cmap
hostname(config-cmap)# match access-list TCP1
hostname(config)# policy-map pmap
hostname(config-pmap)# class cmap
hostname(config-pmap)# set connection advanced-options tmap
hostname(config)# service-policy pmap global
```

Related Commands

Command	Description
class	Specifies a class map to use for traffic classification.
policy-map	Configures a policy; that is, an association of a traffic class and one or more actions.
set connection	Configures connection values.
tcp-map	Creates a TCP map and allows access to tcp-map configuration mode.

tunnel-group

To create and manage the database of connection-specific records for IPsec and WebVPN tunnels, use the **tunnel-group** command in global configuration mode. To remove a tunnel group, use the **no** form of this command.

tunnel-group *name* **type** *type*

no tunnel-group *name*

Syntax Description

name	Specifies the name of the tunnel group. This can be any string you choose. If the name is an IP address, it is usually the IP address of the peer.
type	Specifies the type of tunnel group: • remote-access—Allows a user to connect using either IPsec remote access or WebVPN (portal or tunnel client). • ipsec-l2l—Specifies IPsec LAN-to-LAN, which allows two sites or LANs to connect securely across a public network like the Internet. **Note** The following tunnel-group types are deprecated in Release 8.0(2): ipsec-ra—IPsec remote access webvpn—WebVPN The ASA converts these to the remote-access type.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	See Note.	•	•	—

Note The tunnel-group command is available in transparent firewall mode to allow configuration of a LAN-to-LAN tunnel group, but not a remote-access group or a WebVPN group. All the tunnel-group commands that are available for LAN-to-LAN are also available in transparent firewall mode.

Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	Added webvpn type.
8.0(2)	Added remote-access type and deprecated ipsec-ra and webvpn types.

Release	Modification
8.3(1)	The *name* argument was modified to accept IPv6 addresses.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

SSL VPN users (both AnyConnect and clientless) can choose which tunnel group to access using these different methods:

- group-url
- group-alias
- certificate maps, if using certificates

This command and subcommands configures the ASA to allow users to select a group via a drop-down menu when they log in to the webvpn service. The groups that appear in the menu are either aliases or URLs of real connection profiles (tunnel groups) configured on the ASA.

The ASA has the following default tunnel groups:

- DefaultRAGroup, the default IPsec remote-access tunnel group
- DefaultL2LGroup, the default IPsec LAN-to-LAN tunnel group
- DefaultWEBVPNGroup, the default WebVPN tunnel group.

You can change these groups, but not delete them. The ASA uses these groups to configure default tunnel parameters for remote access and LAN-to-LAN tunnel groups when there is no specific tunnel group identified during tunnel negotiation.

After entering the **tunnel-group** command, you enter the appropriate following commands to configure specific attributes for a particular tunnel group. Each of these commands enters a configuration mode for configuring tunnel-group attributes.

- **tunnel-group general-attributes**
- **tunnel-group ipsec-attributes**
- **tunnel-group webvpn-attributes**
- **tunnel-group ppp-attributes**

For LAN-to-LAN connections, the ASA attempts to select a tunnel group for a connection by matching the peer address specified in the crypto map to a tunnel group of the same name. Therefore, for IPv6 peers, you should configure the tunnel group name as the IPv6 address of the peer. You can specify the tunnel group name in short or long notation. The CLI reduces the name to the shortest notation. For example, if you enter this tunnel group command:

```
hostname(config)# tunnel-group 2001:0db8:0000:0000:0000:0000:1428:57ab type ipsec-l2l
```

The tunnel group appears in the configuration as:

```
tunnel-group 2001:0db8::1428:57ab type ipsec-l2l
```

Examples

The following examples are entered in global configuration mode. The first configures a remote access tunnel group. The group name is group1.

```
hostname(config)# tunnel-group group1 type remote-access
hostname(config)#
```

The following example shows the tunnel-group command configuring the webvpn tunnel group named "group1". You enter this command in global configuration mode:

```
hostname(config)# tunnel-group group1 type webvpn
hostname(config)#
```

Related Commands

Command	Description
clear configure tunnel-group	Clears all configured tunnel groups.
show running-config tunnel-group	Shows the tunnel group configuration for all tunnel groups or for a particular tunnel group.
tunnel-group general-attributes	Enters the config-general mode for configuring general tunnel-group attributes
tunnel-group ipsec-attributes	Enters the config-ipsec mode for configuring IPsec tunnel-group attributes.
tunnel-group ppp-attributes	Enters the config-ppp mode for configuring PPP settings for L2TP connections.
tunnel-group webvpn-attributes	Enters the config-webvpn mode for configuring WebVPN tunnel-group attributes.

tunnel-group-list enable

To enable the tunnel-groups defined in tunnel-group group-alias, use the **tunnel-group-list enable** command:

tunnel-group-list enable

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration	•		•	•	—

Usage Guidelines

This command is used in conjuction with the tunnel-group group-alias and group-url commands for clientless and AnyConnect VPN client sessions. It enables the feature so that the tunnel-group drop-down is displayed on the login page. The group-alias is a text string such as employees, engineering, or consultants defined by the ASA administrator to display to end users.

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

```
hostname# configure terminal
hostname(config)# tunnel-group ExampleGroup1 webvpn-att
hostname(config-tunnel-webvpn)# group-alias Group1 enable
hostname(config-tunnel-webvpn)# exit
hostname(config)# webvpn
hostname(config-webvpn)# tunnel-group-list enable
```

Related Commands

Command	Description
tunnel-group	Creates a VPN connection profile or accesses the database of VPN connection profiles.
group-alias	Configures an alias for a connection profile (tunnel group).

Command	Description
group-url	Matches the URL or IP address specified by the VPN endpoint to the connection profile.
show running-config tunnel-group	Shows the tunnel group configuration for all tunnel groups or for a particular tunnel group.

tunnel-group-preference

To change the VPN preference to a connection profile with a group URL that matches the one specified by the endpoint, use the **tunnel-group-preference** command in webvpn configuration mode. To remove the command from the configuration, use the **no** form.

tunnel-group-preference group-url

no tunnel-group-preference group-url

Syntax Description

This command has no arguments or keywords.

Command Default

By default, if the ASA matches a certificate field value specified in a connection profile to the field value of the certificate used by the endpoint, the ASA assigns that profile to the VPN connection. This command overrides the default behavior.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Config-webvpn	•	—	•	—	—

Command History

Release	Modification
8.2(5)/8.4(2)	We introduced this command.

Usage Guidelines

This command changes the preference of a connection profile during the connection profile selection process. It lets you rely on the group URL preference used by many older ASA software releases. If the endpoint specifies a group URL that is not present in a connection profile, but it specifies a certificate value that matches that of a connection profile, the ASA assigns that connection profile to the VPN session.

Although you enter this command in webvpn configuration mode, it changes the connection profile selection preference for all clientless and AnyConnect VPN connections negotiated by the ASA.

Examples

The following example changes the preference of a connection profile during the connection profile selection process:

```
hostname(config)# webvpn
hostname(config-webvpn)# tunnel-group-preference group-url
hostname(config-webvpn)#
```

Related Commands

Command	Description
tunnel-group	Creates a VPN connection profile or accesses the database of VPN connection profiles.
group-url	Matches the URL or IP address specified by the VPN endpoint to the connection profile.
show running-config tunnel-group	Shows the tunnel group configuration for all tunnel groups or for a particular tunnel group.

tunnel-group general-attributes

To enter the general-attribute configuration mode, use the **tunnel-group general-attributes** command in global configuration mode. This mode is used to configure settings that are common to all supported tunneling protocols.

To remove all general attributes, use the **no** form of this command.

tunnel-group *name* **general-attributes**

no tunnel-group *name* **general-attributes**

Syntax Description

general-attributes	Specifies attributes for this tunnel-group.
name	Specifies the name of the tunnel-group.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Tunnel-group general-attributes configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	Various attributes from other tunnel-group types migrated to the general tunnel-group attributes list, and the prompt for tunnel-group general-attributes mode changed.
9.0(1)	Support for multiple context mode was added.

Examples

The following example entered in global configuration mode, creates a remote-access tunnel group for a remote-access connection using the IP address of the LAN-to-LAN peer, then enters general-attributes configuration mode for configuring tunnel-group general attributes. The name of the tunnel group is 209.165.200.225.

```
hostname(config)# tunnel-group 209.165.200.225 type remote-access
hostname(config)# tunnel-group 209.165.200.225 general-attributes
hostname(config-tunnel-general)#
```

The following example entered in global configuration mode, creates a tunnel group named" remotegrp" for an IPsec remote access connection, and then enters general configuration mode for configuring general attributes for the tunnel group named "remotegrp":

```
hostname(config)# tunnel-group remotegrp type ipsec_ra
hostname(config)# tunnel-group remotegrp general
hostname(config-tunnel-general)
```

Related Commands

Command	Description
clear configure tunnel-group	Clears the entire tunnel-group database or just the specified tunnel-group.
show running-config tunnel-group	Displays the currently running tunnel-group configuration for a specified tunnel group or for all tunnel groups.
tunnel-group	Creates and manages the database of connection-specific records for IPsec and WebVPN tunnels.

tunnel-group ipsec-attributes

To enter the ipsec-attribute configuration mode, use the **tunnel-group ipsec-attributes** command in global configuration mode. This mode is used to configure settings that are specific to the IPsec tunneling protocol.

To remove all IPsec attributes, use the **no** form of this command.

tunnel-group *name* **ipsec-attributes**

no tunnel-group *name* **ipsec-attributes**

Syntax Description

ipsec-attributes	Specifies attributes for this tunnel-group.
name	Specifies the name of the tunnel-group.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	Various IPsec tunnel-group attributes migrated to the general tunnel-group attributes list, and the prompt for tunnel-group ipsec-attributes mode changed.
9.0(1)	Support for multiple context mode was added.

Examples

The following example entered in global configuration, creates a tunnel group for the IPsec remote-access tunnel group named remotegrp, and then specifies IPsec group attributes:

```
hostname(config)# tunnel-group remotegrp type ipsec_ra
hostname(config)# tunnel-group remotegrp ipsec-attributes
hostname(config-tunnel-ipsec)
```

Related Commands

Command	Description
clear configure tunnel-group	Clears the entire tunnel-group database or just the specified tunnel-group.

Command	Description
show running-config tunnel-group	Displays the currently running tunnel-group configuration for a specified tunnel group or for all tunnel groups.
tunnel-group	Creates and manages the database of connection-specific records for IPsec and WebVPN tunnels.

tunnel-group ppp-attributes

To enter the ppp-attributes configuration mode and configure PPP settings that are used by L2TP over IPsec connections, use the **tunnel-group ppp-attributes** command in global configuration mode.

To remove all PPP attributes, use the **no** form of this command.

tunnel-group *name* **ppp-attributes**

no tunnel-group *name* **ppp-attributes**

Syntax Description

name	Specifies the name of the tunnel-group.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

PPP settings are used by the Layer 2 Tunneling Protocol (L2TP), a VPN tunneling protocol which allows remote clients to use the dialup telephone service public IP network to securely communicate with private corporate network servers. L2TP is based on the client/server model and uses PPP over UDP (port 1701) to tunnel the data. All of the tunnel-group ppp commands are available for the PPPoE tunnel-group type.

Examples

The following example creates the tunnel group *telecommuters* and enters ppp-attributes configuration mode:

```
hostname(config)# tunnel-group telecommuters type pppoe
hostname(config)# tunnel-group telecommuters ppp-attributes
hostname(tunnel-group-ppp)#
```

Related Commands

Command	Description
clear configure tunnel-group	Clears the entire tunnel-group database or just the specified tunnel-group.
show running-config tunnel-group	Displays the currently running tunnel-group configuration for a specified tunnel group or for all tunnel groups.
tunnel-group	Creates and manages the database of connection-specific records for IPsec and WebVPN tunnels.

tunnel-group webvpn-attributes

To enter the webvpn-attribute configuration mode, use the **tunnel-group webvpn-attributes** command in global configuration mode. This mode configures settings that are common to WebVPN tunneling.

To remove all WebVPN attributes, use the **no** form of this command.

tunnel-group *name* **webvpn-attributes**

no tunnel-group *name* **webvpn-attributes**

Syntax Description

webvpn-attributes	Specifies WebVPN attributes for this tunnel-group.
name	Specifies the name of the tunnel-group.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.1(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

In addition to the general attributes, you can also configure the following attributes specific to WebVPN connections in webvpn-attribute mode:

- authentication
- customization
- dns-group
- group-alias
- group-url
- without-csd

Examples

The following example entered in global configuration mode, creates a tunnel group for a WebVPN connection using the IP address of the LAN-to-LAN peer, then enters webvpn-configuration mode for configuring WebVPN attributes. The name of the tunnel group is 209.165.200.225.

```
hostname(config)# tunnel-group 209.165.200.225 type webvpn
hostname(config)# tunnel-group 209.165.200.225 webvpn-attributes
hostname(config-tunnel-webvpn)#
```

The following example entered in global configuration mode, creates a tunnel group named" remotegrp" for a WebVPN connection, and then enters webvpn configuration mode for configuring WebVPN attributes for the tunnel group named "remotegrp":

```
hostname(config)# tunnel-group remotegrp type webvpn
hostname(config)# tunnel-group remotegrp webvpn-attributes
hostname(config-tunnel-webvpn)#
```

Related Commands

Command	Description
clear configure tunnel-group	Clears the entire tunnel-group database or just the specified tunnel-group.
show running-config tunnel-group	Displays the currently running tunnel-group configuration for a specified tunnel group or for all tunnel groups.
tunnel-group	Creates and manages the database of connection-specific records for IPsec and WebVPN tunnels.

tunnel-group-map

When the adaptive security appliance receives an IPsec connection request with client certificate authentication, it assigns a connection profile to the connection according to a policy you configure.

That policy can be to use rules you configure, use the certificate OU field, use the IKE identity (i.e. hostname, IP address, key ID), the client's IP address, or a default connection profile to assign the connection profile. For SSL connections, the adaptive security appliance only uses the rules you configure to assign the connection profile.

The **tunnel-group-map** command assigns a connection profile to the connection based on rules you configure by associating an existing map name with a connection profile.

Use the **no** form of this command to disassociate a connection profile with a map name. The no form of the command does not delete the map name, just its association with a connection profile.

This is the syntax of the command:

tunnel-group-map [mapname] [rule-index] [connection-profile]

no tunnel-group-map [mapname] [rule-index]

Note

- You create the certificate map name with this command:
  crypto ca certificate map [mapname] [rule-index]
- A "tunnel group" is old terminology for what we now call a "connection profile." Think of the tunnel-group-map command as creating a connection profile map.

Syntax Description

mapname	Required. Identifies the name of the **existing** certificate map.
rule-index	Required. Identifies the rule-index associated with the mapname. The rule-index parameter was defined using the **crypto ca certificate map** command. The values are 1 to 65535.
connection-profile	Designates the connection profile name for this certificate map list.

Defaults

If a tunnel-group-map is not defined, and the ASA receives an IPsec connection request with client certificate authentication, the ASA assigns a connection profile by trying to match the certificate authentication request to one of these policies, in this order:

Certificate ou field—Determines connection profile based on the value of the organizational unit (OU) field in the subject distinguished name (DN).

IKE identity—Determines the connection profile based on the content of the phase1 IKE ID.

peer-ip—Determines the connection profile based on the established client IP address.

Default Connection Profile—If the ASA does not match the previous three policies, it assigns the default connection profile. The default profile is DefaultRAGroup. The default connection profile would otherwise be configured using the tunnel-group-map default-group command.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

The map name you specify must already exist before you can associate it with a connection profile. You create a map name using the **crypto ca certificate map** command. Refer to the documentation on the **crypto ca certificate map** command for more information.

Once you have associated map names with connection profiles, you need to enable the tunnel-group-map to use the rules you have configured rather than the default polices described earlier. To do this you must run the **tunnel-group-map enable rules** command in global configuration mode.

Examples

The following example associates the map name **SalesGroup,** with rule index **10,** to the **SalesConnectionProfile** connection profile.

```
hostname(config)# tunnel-group-map SalesGroup 10 SalesConnectionProfile
hostname(config)#
```

Related Commands

Command	Description
crypto ca certificate map [map name]	Enters ca certificate map configuration mode and you can use it to create a certificate map name.
tunnel-group-map enable	Enables certificate-based IKE sessions based on established rules.
tunnel-group-map default-group	Designates an existing tunnel-group name as the default tunnel group.

tunnel-group-map default-group

The **tunnel-group-map default-group** command specifies the default tunnel-group to use if the name could not be determined using other configured methods.

Use the **no** form of this command to eliminate a tunnel-group-map.

tunnel-group-map [*rule-index*] **default-group** *tunnel-group-name*

no tunnel-group-map

Syntax Description

default-group *tunnel-group-name*	Specifies a default tunnel group to use when the name cannot be derived by other configured methods. The *tunnel-group name* must already exist.
rule index	Optional. Refers to parameters specified by the **crypto ca certificate map** command. The values are 1 to 65535.

Defaults

The default value for the **tunnel-group-map default-group** is DefaultRAGroup.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

The tunnel-group-map commands configure the policy and rules by which certificate-based IKE sessions are mapped to tunnel groups. To associate the certificate map entries, created using the **crypto ca certificate map** command, with tunnel groups, use the **tunnel-group-map** command in global configuration mode. You can invoke this command multiple times as long as each invocation is unique and you do not reference a map index more than once.

The **crypto ca certificate map** command maintains a prioritized list of certificate mapping rules. There can be only one map. But this map can have up to 65535 rules. Refer to the documentation on the **crypto ca certificate map** command for more information.

The processing that derives the tunnel-group name from the certificate ignores entries in the certificate map that are not associated with a tunnel group (any map rule not identified by this command).

Examples

The following example entered in global configuration mode, specifies a default tunnel group to use when the name cannot be derived by other configured methods. The name of the tunnel group to use is group1:

```
hostname(config)# tunnel-group-map default-group group1
hostname(config)#
```

Related Commands

Command	Description
crypto ca certificate map	Enters crypto ca certificate map configuration mode.
subject-name (crypto ca certificate map)	Identifies the DN from the CA certificate that is to be compared to the rule entry string.
tunnel-group-map enable	Configures the policy and rules by which certificate-based IKE sessions are mapped to tunnel groups

tunnel-group-map enable

The **tunnel-group-map enable** command configures the policy and rules by which certificate-based IKE sessions are mapped to tunnel groups. Use the **no** form of this command to restore the default values.

tunnel-group-map [*rule-index*] **enable** *policy*

no tunnel-group-map enable [*rule-index*]

Syntax Description

policy	Specifies the policy for deriving the tunnel group name from the certificate. *Policy* can be one of the following: **ike-id**—Indicates that if a tunnel-group is not determined based on a rule lookup or taken from the ou, then the certificate-based IKE sessions are mapped to a tunnel group based on the content of the phase1 IKE ID. **ou**—Indicates that if a tunnel-group is not determined based on a rule lookup, then use the value of the organizational unit (OU) in the subject distinguished name (DN). **peer-ip**—Indicates that if a tunnel-group is not determined based on a rule lookup or taken from the ou or ike-id methods, then use the established peer IP address. **rules**—Indicates that the certificate-based IKE sessions are mapped to a tunnel group based on the certificate map associations configured by this command.
rule index	Optional. Refers to parameters specified by the **crypto ca certificate map** command. The values are 1 to 65535.

Defaults

The default values for the **tunnel-group-map** command are **enable ou** and **default-group** set to DefaultRAGroup.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Support for multiple context mode was added.

Usage Guidelines

The **crypto ca certificate map** command maintains a prioritized list of certificate mapping rules. There can be only one map. But this map can have up to 65535 rules. Refer to the documentation on the **crypto ca certificate map** command for more information.

Examples

The following example enables mapping of certificate-based IKE sessions to a tunnel group based on the content of the phase1 IKE ID:

```
hostname(config)# tunnel-group-map enable ike-id
hostname(config)#
```

The following example enables mapping of certificate-based IKE sessions to a tunnel group based on the established IP address of the peer:

```
hostname(config)# tunnel-group-map enable peer-ip
hostname(config)#
```

The following example enables mapping of certificate-based IKE sessions based on the organizational unit (OU) in the subject distinguished name (DN):

```
hostname(config)# tunnel-group-map enable ou
hostname(config)#
```

The following example enables mapping of certificate-based IKE sessions based on established rules:

```
hostname(config)# tunnel-group-map enable rules
hostname(config)#
```

Related Commands

Command	Description
crypto ca certificate map	Enters CA certificate map mode.
subject-name (crypto ca certificate map)	Identifies the DN from the CA certificate that is to be compared to the rule entry string.
tunnel-group-map default-group	Designates an existing tunnel-group name as the default tunnel group.

tunnel-limit

To specify the maximum number of GTP tunnels allowed to be active on the ASA, use the **tunnel limit** command in GTP map configuration mode, which is accessed by using the **gtp-map** command. Use the **no** to set the tunnel limit back to its default.

tunnel-limit *max_tunnels*

no tunnel-limit *max_tunnels*

Syntax Description

max_tunnels	This is the maximum number of tunnels allowed. The ranges is from 1 to 4294967295 for the global overall tunnel limit.

Defaults

The default for the tunnel limit is 500.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Gtp map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

New requests will be dropped once the number of tunnels specified by this command is reached.

Examples

The following example specifies a maximum of 10,000 tunnels for GTP traffic:

```
hostname(config)# gtp-map qtp-policy
hostname(config-gtpmap)# tunnel-limit 10000
```

Related Commands

Commands	Description
clear service-policy inspect gtp	Clears global GTP statistics.
debug gtp	Displays detailed information about GTP inspection.
gtp-map	Defines a GTP map and enables GTP map configuration mode.

Commands	Description
inspect gtp	Applies a specific GTP map to use for application inspection.
show service-policy inspect gtp	Displays the GTP configuration.

tx-ring-limit

To specify the depth of the priority queues, use the **tx-ring-limit** command in priority-queue mode. To remove this specification, use the **no** form of this command.

Note This command is not supported on ASA 5580 Ten Gigabit Ethernet interfaces. (Ten Gigabit Ethernet interfaces are supported for priority queues on the ASA 5585-X.) This command is also not supported for the ASA 5512-X through ASA 5555-X Management interface.

This command is not supported on the ASA Services Module.

tx-ring-limit *number-of-packets*

no tx-ring-limit *number-of-packets*

Syntax Description

number-of-packets	Specifies the maximum number of low-latency or normal priority packets allowed into the Ethernet transmit driver before the driver pushes back to the queues on the interface to let them buffer packets until the congestion clears. The range of **tx-ring-limit** values is 3 through 128 packets on the PIX platform and 3 through 256 packets on the ASA platform.

Defaults

The default **tx-ring-limit** is 128 packets.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Priority-queue	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The ASA allows two classes of traffic: low-latency queuing (LLQ) for higher priority, latency sensitive traffic (such as voice and video) and best-effort, the default, for all other traffic. The ASA recognizes priority traffic and enforces appropriate Quality of Service (QoS) policies. You can configure the size and depth of the priority queue to fine-tune the traffic flow.

You must use the **priority-queue** command to create the priority queue for an interface before priority queuing takes effect. You can apply one **priority-queue** command to any interface that can be defined by the **nameif** command.

The **priority-queue** command enters priority-queue mode, as shown by the prompt. In priority-queue mode, you can configure the maximum number of packets allowed in the transmit queue at any given time (**tx-ring-limit** command) and the number of packets of either type (priority or best -effort) allowed to be buffered before dropping packets (**queue-limit** command).

Note You *must* configure the **priority-queue** command in order to enable priority queueing for the interface.

The tx-ring-limit and the queue-limit that you specify affect both the higher priority low-latency queue and the best-effort queue. The tx-ring-limit is the number of either type of packets allowed into the driver before the driver pushes back to the queues sitting in front of the interface to let them buffer packets until the congestion clears. In general, you can adjust these two parameters to optimize the flow of low-latency traffic.

Because queues are not of infinite size, they can fill and overflow. When a queue is full, any additional packets cannot get into the queue and are dropped. This is *tail drop*. To avoid having the queue fill up, you can use the **queue-limit** command to increase the queue buffer size.

Note The upper limit of the range of values for the **queue-limit** and **tx-ring-limit** commands is determined dynamically at run time. To view this limit, enter **help** or **?** on the command line. The key determinant is the memory needed to support the queues and the memory available on the device. The range of **queue-limit** values is 0 through 2048 packets. The range of **tx-ring-limit** values is 3 through 128 packets on the PIX platform and 3 through 256 packets on the ASA platform.

On ASA Model 5505 (only), configuring priority-queue on one interface overwrites the same configuration on all other interfaces. That is, only the last applied configuration is present on all interfaces. Further, if the priority-queue configuration is removed from one interface, it is removed from all interfaces.

To work around this issue, configure the **priority-queue** command on only one interface. If different interfaces need different settings for the **queue-limit** and/or **tx-ring-limit** commands, use the largest of all queue-limits and smallest of all tx-ring-limits on any one interface (CSCsi13132).

Examples

The following example configures a priority queue for the interface named test, specifying a queue limit of 2048 packets and a transmit queue limit of 256 packets.

```
hostname(config)# priority-queue test
hostname(priority-queue)# queue-limit 2048
hostname(priority-queue)# tx-ring-limit 256
```

Related Commands

Command	Description
clear configure priority-queue	Removes the current priority queue configuration on the named interface.
priority-queue	Configures priority queuing on an interface.
queue-limit	Specifies the maximum number of packets that can be enqueued to a priority queue before it drops data.

Command	Description
show priority-queue statistics	Shows the priority-queue statistics for the named interface.
show running-config priority-queue	Shows the current priority queue configuration. If you specify the **all** keyword, this command displays all the current **priority-queue**, **queue-limit**, and **tx-ring-limit** command configuration values.

type echo

To configure the SLA operation as an echo response time probe operation, use the **type echo** command in SLA monitor configuration mode. To remove the type from teh SLA configuration, use the **no** form of this command.

type echo protocol ipIcmpEcho *target* interface *if-name*

no type echoprotocol ipIcmpEcho *target* interface *if-name*

Syntax Description

interface *if-name*	Specifies the interface name, as specified by the **nameif** command, of the interface used to send the echo request packets. The interface source address is used as the source address in the echo request packets.
protocol	The protocol keyword. The only value supported is **ipIcmpEcho**, which specifies using an IP/ICMP echo request for the echo operation.
target	The IP address or host name of the object being monitored.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
SLA monitor configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

The default size of the payload of the ICMP packets is 28 bytes, creating a total ICMP packet size of 64 bytes. The payload size can be changed using the **request-data-size** command.

Examples

The following example configures an SLA operation with an ID of 123 that uses an ICMP echo request/response time probe operation. It creates a tracking entry with the ID of 1 to track the reachability of the SLA. The frequency of the SLA operation is set to 10 seconds, the threshold to 2500 milliseconds, and the timeout value us set to 4000 milliseconds.

```
hostname(config)# sla monitor 123
hostname(config-sla-monitor)# type echo protocol ipIcmpEcho 10.1.1.1 interface outside
hostname(config-sla-monitor-echo)# threshold 2500
hostname(config-sla-monitor-echo)# timeout 4000
hostname(config-sla-monitor-echo)# frequency 10
hostname(config)# sla monitor schedule 123 life forever start-time now
```

```
hostname(config)# track 1 rtr 123 reachability
```

Related Commands

Command	Description
num-packets	Specifies the number of request packets to send during an SLA operation.
request-data-size	Specifies the size of the payload for the SLA operation request packet.
sla monitor	Defines an SLA monitoring operation.

CHAPTER 66

uc-ime through username-prompt Commands

uc-ime

To create the Cisco Intercompany Media Engine proxy instance, use the **uc-ime** command in global configuration mode. To remove the proxy instance, use the **no** form of this command.

uc-ime *uc-ime_name*

no uc-ime *uc-ime_name*

Syntax Description

uc-ime_name	Specifies the instance name of the Cisco Intercompany Media Engine proxy configured on the ASA. The *name* is limited to 64 characters. Only one Cisco Intercompany Media Engine proxy can be configured on the ASA.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
8.3(1)	The command was introduced.

Usage Guidelines

Configures the Cisco Intercompany Media Engine proxy. Cisco Intercompany Media Engine enables companies to interconnect on-demand, over the Internet with advanced features made available by VoIP technologies. Cisco Intercompany Media Engine allows for business-to-business federation between Cisco Unified Communications Manager clusters in different enterprises by utilizing peer-to-peer, security, and SIP protocols to create dynamic SIP trunks between businesses. A collection of enterprises work together to end up looking like one large business with inter-cluster trunks between them.

You must create the media termination instance before you specify it in the Cisco Intercompany Media Engine proxy.

Only one Cisco Intercompany Media Engine proxy can be configured on the ASA.

Examples

The following example shows how to configure a Cisco Intercompany Media Engine proxy by using the **uc-ime** command.

```
hostname(config)# uc-ime local_uc-ime_proxy
hostname(config-uc-ime)# media-termination ime-media-term
hostname(config-uc-ime)# ucm address 192.168.10.30 trunk-security-mode non-secure
```

```
hostname(config-uc-ime)# ticket epoch 1 password password1234
hostname(config-uc-ime)# fallback monitoring timer 120
hostname(config-uc-ime)# fallback hold-down timer 30
```

Related Commands

Command	Description
fallback	Configures the fallback timers that the Cisco Intercompany Media Engine uses to fallback from VoIP to PSTN when connection integrity degrades.
show uc-ime	Displays statistical or detailed information about fallback-notifications, mapping-service-sessions, and signaling-sessions.
ticket	Configures the ticket epoch and password for the Cisco Intercompany Media Engine proxy.
ucm	Configures the Cisco UCMs that the Cisco Intercompany Media Engine Proxy connects to.

ucm

To configure which Cisco Unified Communication Managers (UCM) that the Cisco Intercompany Media Engine Proxy connects to, use the **ucm** command in global configuration mode. To remove the the Cisco UCM that are connected to the Cisco Intercompanuy Media Engine Proxy, use the **no** form of this command.

ucm address *ip_address* **trunk-security-mode** {**nonsecure** | **secure**}

no ucm address *ip_address* **trunk-security-mode** {**nonsecure** | **secure**}

Syntax Description

address	The keyword to configure the IP address of the Cisco Unified Communications Manager (UCM).
ip_address	Specifies the IP address of the Cisco UCM. Enter the IP address in IPv4 format.
nonsecure	Specifies that the Cisco UCM or Cisco UCM cluster is operating in non-secure mode.
secure	Specifies that the Cisco UCM or Cisco UCM cluster is operating in secure mode.
trunk-security-mode	The keyword to configure the security mode of the Cisco UCM or Cisco UCM cluster.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
UC-IME configuration	•	—	•	—	—

Command History

Release	Modification
8.3(1)	This command was introduced.

Usage Guidelines

Specifies the Cisco UCM server in the enterprise.

You can enter multiple **ucm** commands for the Cisco Intercompany Media Engine proxy.

Note You must include an entry for each Cisco UCM in the cluster with Cisco Intercompany Media Engine that has a SIP trunk enabled.

Specifying **secure** for Cisco UCM or Cisco UCM cluster indicates that Cisco UCM or Cisco UCM cluster is initiating TLS; therefore, you must set up configure TLS for components.

You can specify the **secure** option in this task or you can update it later while configuring TLS for the enterprise.

TLS within the enterprise refers to the security status of the Cisco Intercompany Media Engine trunk as seen by the adaptive security appliance.

If the transport security for the Cisco Intercompany Media Engine trunk changes on Cisco UCM, it must be changed on the adaptive security appliance as well. A mismatch will result in call failure. The adaptive security appliance does not support SRTP with non-secure IME trunks. The adaptive security appliance assumes SRTP is allowed with secure trunks. So 'SRTP Allowed' must be checked for IME trunks if TLS is used. The adaptive security appliance supports SRTP fallback to RTP for secure IME trunk calls.

The proxy sits on the edge of the enterprise and inspects SIP signaling between SIP trunks created between enterprises. It terminates TLS signaling from the Internet and initiates TCP or TLS to Cisco UCM.

Transport Layer Security (TLS) is a cryptographic protocol that provides security for communications over networks such as the Internet. TLS encrypts the segments of network connections at the Transport Layer end-to-end.

This task is not required if TCP is allowable within the inside network.

Key steps for Configuring TLS within the local enterprise:

- local adaptive security appliance, create another RSA key and trustpoint for the self-signed certificate
- exporting and importing the certificates between the local Cisco UCM and local adaptive security appliance
- create a trustpoint for local Cisco UCM on the adaptive security appliance

Authentication via TLS: In order for the ASA to act as a porty on behalf of N enterprises, the Cisco UCMs must be able to accept the one certificate from the ASA. This can be done by associating all the UC-IME SIP trunks with the same SIP security profile containing the same subject name as that of the one presented by the ASA because the Cisco UCM extracts the subject name from the certificate and compares that with the name configured in the security profile.

Examples

The following example shows ...:

```
hostname(config)# uc-ime local_uc-ime_proxy
hostname(config-uc-ime)# media-termination ime-media-term
hostname(config-uc-ime)# ucm address 192.168.10.30 trunk-security-mode non-secure
hostname(config-uc-ime)# ticket epoch 1 password password1234
hostname(config-uc-ime)# fallback monitoring timer 120
hostname(config-uc-ime)# fallback hold-down timer 30
```

undebug

To disable the display of debugging information in the current session, use the **undebug** command in privileged EXEC mode.

undebug {*command* | **all**}

Syntax Description

command	Disables debug for the specified command. See the Usage Guidelines for information about the supported commands.
all	Disables all debug output.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was modified. It includes additional **debug** keywords.

Usage Guidelines

The following commands can be used with the **undebug** command. For more information about debugging a specific command, or for the associated arguments and keywords for a specific **debug** command, see the entry for the **debug** command.

- aaa—AAA information
- acl—ACL information
- all—All debugging
- appfw—Application firewall information
- arp—ARP including NP operations
- asdm—ASDM information
- auto-update—Auto-update information
- boot-mem—Boot memory calculation and set
- cifs—CIFS information
- cmgr—CMGR information
- context—Context information
- cplane—CP information

- crypto—Crypto information
- ctiqbe—CTIQBE information
- ctl-provider—CTL provider debugging information
- dap—DAP information
- dcerpc—DCERPC information
- ddns—Dynamic DNS information
- dhcpc—DHCP client information
- dhcpd—DHCP server information
- dhcprelay—DHCP Relay information
- disk—Disk information
- dns—DNS information
- eap—EAP information
- eigrp—EIGRP protocol information
- email—Email information
- entity—Entity MIB information
- eou—EAPoUDP information
- esmtp—ESMTP information
- fips—FIPS 140-2 information
- fixup—Fixup information
- fover—Failover information
- fsm—FSM information
- ftp—FTP information
- generic—Miscellaneous information
- gtp—GTP information
- h323—H323 information
- http—HTTP information
- icmp—ICMP information
- igmp—Internet Group Management Protocol
- ils—LDAP information
- im—IM inspection information
- imagemgr—Image Manager information
- inspect—inspect debugging information
- integrityfw—Integrity Firewall information
- ip—IP information
- ipsec-over-tcp—IPsec over TCP information
- ipsec-pass-thru—Inspect ipsec-pass-thru information
- ipv6—IPv6 information
- iua-proxy—IUA proxy information

- kerberos—KERBEROS information
- l2tp—L2TP information
- ldap—LDAP information
- mfib—Multicast forwarding information base
- mgcp—MGCP information
- module-boot—Service module boot information
- mrib—Multicast routing information base
- nac-framework—NAC-FRAMEWORK information
- netbios-inspect—NETBIOS inspect information
- npshim—NPSHIM information
- ntdomain—NT domain information
- ntp—NTP information
- ospf—OSPF information
- p2p—P2P inspection information
- parser—Parser information
- pim—Protocol Independent Multicast
- pix—PIX information
- ppp—PPP information
- pppoe—PPPoE information
- pptp—PPTP information
- radius—RADIUS information
- redundant-interface—redundant interface information
- rip—RIP information
- rtp—RTP information
- rtsp—RTSP information
- sdi—SDI information
- sequence—Add sequence number
- session-command—Session command information
- sip—SIP information
- skinny—Skinny information
- sla—IP SLA Monitor Debug
- smtp-client—Email system log messsages
- splitdns—Split DNS information
- sqlnet—SQLNET information
- ssh—SSH information
- sunrpc—SUNRPC information
- tacacs—TACACS information
- tcp—TCP for WebVPN

- tcp-map—TCP map information
- timestamps—Add timestamp
- track—static route tracking
- vlan-mapping—VLAN mapping information
- vpn-sessiondb—VPN session database information
- vpnlb—VPN load balancing information
- wccp—WCCP information
- webvpn—WebVPN information
- xdmcp—XDMCP information
- xml—XML parser information

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco TAC. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

Examples

The example disabled all debugging output:

```
hostname(config)# undebug all
```

Related Commands

Command	Description
debug	Displays debug information for the selected command.

unix-auth-gid

To set the UNIX group ID, use the **unix-auth-gid** command in group-policy webvpn configuration mode. To remove this command from the configuration, use the **no** version of this command.

unix-auth-gid *identifier*

no storage-objects

Syntax Description

identifier	Specifies an integer in the range 0 through 4294967294.

Defaults

The default is 65534.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy webvpn configuration mode	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

The string specifies a network file system (NetFS) location. Only SMB and FTP protocols are supported; for example, smb://(NetFS location) or ftp://(NetFS location). You use the name of this location in the **storage-objects** command.

Examples

The following example sets the UNIX group ID to 4567:

```
hostname(config)# group-policy test attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# unix-auth-gid 4567
```

Related Commands

Command	Description
unix-auth-uid	Sets the UNIX user ID.

unix-auth-uid

To set the UNIX user ID, use the **unix-auth-uid** command in group-policy webvpn configuration mode. To remove this command from the configuration, use the **no** version of this command.

unix-auth-gid *identifier*

no storage-objects

Syntax Description

identifier	Specifies an integer in the range 0 through 4294967294.

Defaults

The default is 65534.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy webvpn configuration mode	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

The string specifies a network file system (NetFS) location. Only SMB and FTP protocols are supported; for example, smb://(NetFS location) or ftp://(NetFS location). You use the name of this location in the **storage-objects** command.

Examples

The following example sets the UNIX user ID to 333:

```
hostname(config)# group-policy test attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# unix-auth-gid 333
```

Related Commands

Command	Description
unix-auth-gid	Sets the UNIX group ID.

upload-max-size

To specify the maximum size allowed for an object to upload, use the **upload-max-size** command in group-policy webvpn configuration mode. To remove this object from the configuration, use the **no** version of this command.

upload-max-size *size*

no upload-max-size

Syntax Description

size	Specifies the maximum size allowed for a uploaded object. The range is 0 through 2147483647.

Defaults

The default size is 2147483647.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy webvpn configuration mode	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Setting the size to 0 effectively disallows object uploading.

Examples

The following example sets the maximum size for a uploaded object to 1500 bytes:

```
hostname(config)# group-policy test attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# upload-max-size 1500
```

Related Commands

Command	Description
post-max-size	Specifies the maximum size of an object to post.
download-max-size	Specifies the maximum size of an object to download.

Command	Description
webvpn	Use in group-policy configuration mode or in username configuration mode. Lets you enter webvpn mode to configure parameters that apply to group policies or usernames.
webvpn	Use in global configuration mode. Lets you configure global settings for WebVPN.

uri-non-sip

To identify the non-SIP URIs present in the Alert-Info and Call-Info header fields, use the **uri-non-sip** command in parameters configuration mode. Parameters configuration mode is accessible from policy map configuration mode. To disable this feature, use the **no** form of this command.

uri-non-sip action {**mask** | **log**} [**log**}

no uri-non-sip action {**mask** | **log**} [**log**}

Syntax Description

log	Specifies standalone or additional log in case of violation.
mask	Masks the non-SIP URIs.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to identify the non-SIP URIs present in the Alert-Info and Call-Info header fields in a SIP inspection policy map:

```
hostname(config)# policy-map type inspect sip sip_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# uri-non-sip action log
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

url

To maintain the list of static URLs for retrieving CRLs, use the **url** command in crl configure configuration mode. The crl configure configuration mode is accessible from the crypto ca trustpoint configuration mode. To delete an existing URL, use the **no** form of this command.

url *index url*

no url *index url*

Syntax Description

index	Specifies a value from 1 to 5 that determines the rank of each URL in the list. The ASA tries the URL at index 1 first.
url	Specifies the URL from which to retrieve the CRL.

Defaults

No default behaviors or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Crl configure configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You cannot overwrite existing URLs. To replace an existing URL, first delete it using the **no** form of this command.

Examples

The following example enters ca-crl configuration mode, and sets up an index 3 for creating and maintaining a list of URLs for CRL retrieval and configures the URL https://example.com from which to retrieve CRLs:

```
hostname(configure)# crypto ca trustpoint central
hostname(ca-trustpoint)# crl configure
hostname(ca-crl)# url 3 https://example.com
hostname(ca-crl)#
```

Related Commands

Command	Description
crl configure	Enters ca-crl configuration mode.
crypto ca trustpoint	Enters trustpoint configuration mode.
policy	Specifies the source for retrieving CRLs.

url-block

To manage the URL buffers used for web server responses while waiting for a filtering decision from the filtering server, use the **url-block** command. To remove the configuration, use the **no** form of this command.

url-block block *block_buffer*

no url-block block *block_buffer*

url-block mempool-size *memory_pool_size*

no url-block mempool-size *memory_pool_size*

url-block url-size *long_url_size*

no url-block url-size *long_url_size*

Syntax Description

block *block_buffer*	Creates an HTTP response buffer to store web server responses while waiting for a filtering decision from the filtering server. The permitted values are from 1 to 128, which specifies the number of 1550-byte blocks.
mempool-size *memory_pool_size*	Configures the maximum size of the URL buffer memory pool in Kilobytes (KB). The permitted values are from 2 to 10240, which specifies a URL buffer memory pool from 2 KB to 10240 KB.
url-size *long_url_size*	Configures the maximum allowed URL size in KB for each long URL being buffered. The permitted values, which specifies a maximum URL size,: for Websense are 2, 3, or 4, representing 2 KB, 3 KB, or 4KB; or for Secure Computing, 2 or 3, representing 2 KB or 3 KB.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

For Websense filtering servers, the **url-block url-size** command allows filtering of long URLs, up to 4 KB. For Secure Computing, the **url-block url-size** command allows filtering of long URLs, up to 3 KB. For both Websense and N2H2 filtering servers, the **url-block block** command causes the ASA to buffer packets received from a web server in response to a web client request while waiting for a response from the URL filtering server. This improves performance for the web client compared to the default ASA behavior, which is to drop the packets and to require the web server to retransmit the packets if the connection is permitted.

If you use the **url-block block** command and the filtering server permits the connection, the ASA sends the blocks to the web client from the HTTP response buffer and removes the blocks from the buffer. If the filtering server denies the connection, the ASA sends a deny message to the web client and removes the blocks from the HTTP response buffer.

Use the **url-block block** command to specify the number of blocks to use for buffering web server responses while waiting for a filtering decision from the filtering server.

Use the **url-block url-size** command with the **url-block mempool-size** command to specify the maximum length of a URL to be filtered and the maximum memory to assign to the URL buffer. Use these commands to pass URLs longer than 1159 bytes, up to a maximum of 4096 bytes, to the Websense or Secure-Computing server. The **url-block url-size** command stores URLs longer than 1159 bytes in a buffer and then passes the URL to the Websense or Secure-Computing server (through a TCP packet stream) so that the Websense or Secure-Computing server can grant or deny access to that URL.

Examples

The following example assigns 56 1550-byte blocks for buffering responses from the URL filtering server:

```
hostname#(config)# url-block block 56
```

Related Commands

Commands	Description
clear url-block block statistics	Clears the block buffer usage counters.
filter url	Directs traffic to a URL filtering server.
show url-block	Displays information about the URL cache, which is used for buffering URLs while waiting for responses from an N2H2 or Websense filtering server.
url-cache	Enables URL caching while pending responses from an N2H2 or Websense server and sets the size of the cache.
url-server	Identifies an N2H2 or Websense server for use with the **filter** command.

url-cache

To enable URL caching for URL responses received from a Websense server and to set the size of the cache, use the **url-cache** command in global configuration mode. To remove the configuration, use the **no** form of this command.

url-cache { **dst** | **src_dst** } *kbytes* [**kb**]

no url-cache { **dst** | **src_dst** } *kbytes* [**kb**]

Syntax Description

dst	Cache entries based on the URL destination address. Select this mode if all users share the same URL filtering policy on the Websense server.
size *kbytes*	Specifies a value for the cache size within the range 1 to 128 KB.
src_dst	Cache entries based on the both the source address initiating the URL request as well as the URL destination address. Select this mode if users do not share the same URL filtering policy on the Websense server.
statistics	Use the **statistics** option to display additional URL cache statistics, including the number of cache lookups and hit rate.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **url-cache** command provides a configuration option to cache responses from the URL server.

Use the **url-cache** command to enable URL caching, set the size of the cache, and display cache statistics.

Note The N2H2 server application does not support this command for URL filtering.

Caching stores URL access privileges in memory on the ASA. When a host requests a connection, the ASA first looks in the URL cache for matching access privileges instead of forwarding the request to the Websense server. Disable caching with the **no url-cache** command.

Note If you change settings on the Websense server, disable the cache with the **no url-cache** command and then re-enable the cache with the **url-cache** command.

Using the URL cache does not update the Websense accounting logs for Websense protocol Version 1. If you are using Websense protocol Version 1, let Websense run to accumulate logs so you can view the Websense accounting information. After you get a usage profile that meets your security needs, enable **url-cache** to increase throughput. Accounting logs are updated for Websense protocol Version 4 URL filtering while using the **url-cache** command.

Examples

The following example caches all outbound HTTP connections based on the source and destination addresses:

```
hostname(config)# url-cache src_dst 128
```

Related Commands

Commands	Description
clear url-cache statistics	Removes **url-cache** command statements from the configuration.
filter url	Directs traffic to a URL filtering server.
show url-cache statistics	Displays information about the URL cache, which is used for URL responses received from a Websense filtering server.
url-server	Identifies a Websense server for use with the **filter** command.

url-entry

To enable or disable the ability to enter any HTTP/HTTPS URL on the portal page, use the **url-entry** command in dap webvpn configuration mode.

url-entry enable | disable

enable | disable	Enables or disables the ability to browse for file servers or shares..

Defaults

No default value or behaviors.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Dap webvpn configuration	•	•	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Examples

The following example shows how to enable URL entryfor the DAP record called Finance:

```
hostname (config) config-dynamic-access-policy-record Finance
hostname(config-dynamic-access-policy-record)# webvpn
hostname(config-dynamic-access-policy-record)# url-entry enable
```

Related Commands

Command	Description
dynamic-access-policy-record	Creates a DAP record.
file-entry	Enables or disables the ability to enter file server names to access.

url-length-limit

To configure the maximum length of the URL allowed in the RTSP message, use the **url-length-limit** command in parameters configuration mode. Parameters configuration mode is accessible from policy map configuration mode. To disable this feature, use the **no** form of this command.

url-length-limit *length*

no url-length-limit *length*

Syntax Description

length	The URL length limit in bytes. Range is 0 to 6000.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Examples

The following example shows how to configure the URL length limit in an RTSP inspection policy map:

```
hostname(config)# policy-map type inspect rtsp rtsp_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# url-length-limit 50
```

Related Commands

Command	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
show running-config policy-map	Display all current policy map configurations.

url-list (removed)

You can no longer use this command to define URl lists for access over SSL VPN connections. Now use the **import** command to import the XML object that defines a URL list. See the **import-** and **export-url-list** commands for more information.

Defaults

There is no default URL list.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration mode	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.0(2)	This command was deprecated. It remains in the software for this release only to provide backward compatibility for pre-existing URL lists, so that the security appliance can convert such lists to XML files. Be aware that you cannot use the command to create a new URL list.

Usage Guidelines

You use the url-list command in global configuration mode to create one or more lists of URLs. To allow access to the URLs in a list for a specific group policy or user, use the *listname* you create here with the **url-list** command in webvpn mode.

Examples

The following example shows how to create a URL list called *Marketing URLs* that provides access to www.cisco.com, www.example.com, and www.example.org. The following table provides values that the example uses for each application.

listname	displayname	url
Marketing URLs	Cisco Systems	http://www.cisco.com
Marketing URLs	Example Company, Inc.	http://www.example.com
Marketing URLs	Example Organization	http://www.example.org

```
hostname(config)# url-list Marketing URLs Cisco Systems http://www.cisco.com
hostname(config)# url-list Marketing URLs Example Company, Inc. http://www.example.com
hostname(config)# url-list Marketing URLs Example Organization http://www.example.org
```

Related Commands

Command	Description
clear configuration url-list	Removes all url-list commands from the configuration. If you include the listname, the ASA removes only the commands for that list.
show running-configuration url-list	Displays the current set of configured urls.
webvpn	Use in group-policy configuration mode or in username configuration mode. Lets you enter webvpn mode to configure parameters that apply to group policies or usernames.
webvpn	Use in global configuration mode. Lets you configure global settings for WebVPN.

url-list (group-policy webvpn)

To apply a list of WebVPN servers and URLs to a particular user or group policy, use the **url-list** command in group-policy webvpn configuration mode or in username webvpn configuration mode. To remove a list, including a null value created by using the **url-list none command,** use the **no** form of this command. The **no** option allows inheritance of a value from another group policy. To prevent inheriting a url list, use the **url-list none** command. Using the command a second time overrides the previous setting.

url-list {**value** *name* | **none**} [*index*]

no url-list

Syntax Description

index	Indicates the display priority on the home page.
none	Sets a null value for url lists. Prevents inheriting a list from a default or specified group policy.
value *name*	Specifies the name of a previously configured list of urls. To configure such a list, use the **url-list** command in global configuration mode.

Defaults

There is no default URL list.

Command Modes

The following table shows the modes in which you enter the commands:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy webvpn confguration	•	—	•	—	—
Username configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Using the command a second time overrides the previous setting.

Before you can use the **url-list** command in webvpn mode to identify a URL list that you want to display on the WebVPN home page for a user or group policy, you must create the list via an XML object. Use the **import** command in global configuration mode to download a URL list to the security appliance. Then use the url-list command to apply a list to a particular group policy or user.

Examples

The following example applies a URL list called FirstGroupURLs for the group policy named FirstGroup and assigns it first place among the URL lists:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# url-list value FirstGroupURLs 1
```

Related Commands

Command	Description
clear configure url-list [*listname*]	Removes all url-list commands from the configuration. If you include the listname, the ASA removes only the commands for that list.
show running-configuration url-list	Displays the current set of configured **url-list** commands.
webvpn	Lets you enter webvpn mode. This can be webvpn configuration mode, group-policy webvpn configuration mode (to configure webvpn settings for a specific group policy), or username webvpn configuration mode (to configure webvpn settings for a specific user).

url-server

To identify an N2H2 or Websense server for use with the **filter** command, use the **url-server** command in global configuration mode. To remove the configuration, use the **no** form of this command.

N2H2

url-server [(*if_name*)] **vendor** {**smartfilter** | **n2h2**} **host** *local_ip* [**port** *number*] [**timeout** *seconds*] [**protocol** {**TCP** [connections *number*]} | **UDP**]

no url-server [(*if_name*)] **vendor** {**smartfilter** | **n2h2**} **host** *local_ip* [**port** *number*] [**timeout** *seconds*] [**protocol** {**TCP** [**connections** *number*]} | **UDP**]

Websense

url-server (*if_name*) **vendor websense host** *local_ip* [**timeout** *seconds*] [**protocol** {**TCP** | **UDP** | **connections** *num_conns*] | *version*]

no url-server (*if_name*) **vendor websense host** *local_ip* [**timeout** *seconds*] [**protocol** {**TCP** | **UDP** [**connections** *num_conns*] | *version*]

Syntax Description

N2H2

connections	Limits the maximum number of TCP connections permitted.
num_conns	Specifies the maximum number of TCP connections created from the security appliance to the URL server. Since this number is per server, different servers can have different connection values.
host *local_ip*	The server that runs the URL filtering application.
if_name	(Optional) The network interface where the authentication server resides. If not specified, the default is inside.
port *number*	The N2H2 server port. The ASA also listens for UDP replies on this port. The default port number is 4005.
protocol	The protocol can be configured using **TCP** or **UDP** keywords. The default is TCP.
timeout *seconds*	The maximum idle time permitted before the ASA switches to the next server you specified. The default is 30 seconds.
vendor	Indicates URL filtering service, using either ‘smartfilter’ or ‘n2h2’ (for backward compatibility); however, ‘smartfilter’ is saved as the vendor string.

Websense

connections	Limits the maximum number of TCP connections permitted.
num_conns	Specifies the maximum number of TCP connections created from the security appliance to the URL server. Since this number is per server, different servers can have different connection values.
host *local_ip*	The server that runs the URL filtering application.
if_name	The network interface where the authentication server resides. If not specified, the default is inside.

timeout *seconds*	The maximum idle time permitted before the ASA switches to the next server you specified. The default is 30 seconds.
protocol	The protocol can be configured using **TCP** or **UDP** keywords. The default is TCP protocol, Version 1.
vendor websense	Indicates URL filtering service vendor is Websense.
version	Specifies protocol Version **1** or **4**. The default is TCP protocol Version 1. TCP can be configured using Version 1 or Version 4. UDP can be configured using Version 4 only.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•		•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **url-server** command designates the server running the N2H2 or Websense URL filtering application. The limit is 16 URL servers in single context mode and 4 URL servers in multi mode; however, and you can use only one application at a time, either N2H2 or Websense. Additionally, changing your configuration on the ASA does not update the configuration on the application server; this must be done separately, according to the vendor instructions.

The **url-server** command must be configured before issuing the **filter** command for HTTPS and FTP. If all URL servers are removed from the server list, then all **filter** commands related to URL filtering are also removed.

Once you designate the server, enable the URL filtering service with the **filter url** command.

Use the **show url-server statistics** command to view server statistic information including unreachable servers.

Follow these steps to filter URLs:

Step 1 Designate the URL filtering application server with the appropriate form of the vendor-specific **url-server** command.

Step 2 Enable URL filtering with the **filter** command.

Step 3 (Optional) Use the **url-cache** command to enable URL caching to improve perceived response time.

Step 4 (Optional) Enable long URL and HTTP buffering support using the **url-block** command.

Step 5 Use the **show url-block block statistics**, **show url-cache statistics**, or the **show url-server statistics** commands to view run information.

For more information about filtering by N2H2, visit N2H2's website at:

http://www.n2h2.com

For more information about Websense filtering services, visit the following website:

http://www.websense.com/

Examples

Using N2H2, the following example filters all outbound HTTP connections except those from the 10.0.2.54 host:

```
hostname(config)# url-server (perimeter) vendor n2h2 host 10.0.1.1
hostname(config)# filter url http 0 0 0 0
hostname(config)# filter url except 10.0.2.54 255.255.255.255 0 0
```

Using Websense, the following example filters all outbound HTTP connections except those from the 10.0.2.54 host:

```
hostname(config)# url-server (perimeter) vendor websense host 10.0.1.1 protocol TCP
version 4
hostname(config)# filter url http 0 0 0 0
hostname(config)# filter url except 10.0.2.54 255.255.255.255 0 0
```

Related Commands

Commands	Description
clear url-server	Clears the URL filtering server statistics.
filter url	Directs traffic to a URL filtering server.
show url-block	Displays information about the URL cache, which is used for URL responses received from an N2H2 or Websense filtering server.
url-cache	Enables URL caching while pending responses from an N2H2 or Websense server and sets the size of the cache.

urgent-flag

To allow or clear the URG pointer through the TCP normalizer, use the **urgent-flag** command in tcp-map configuration mode. To remove this specification, use the **no** form of this command.

urgent-flag {**allow** | **clear**}

no urgent-flag {**allow** | **clear**}

Syntax Description

allow	Allows the URG pointer through the TCP normalizer.
clear	Clears the URG pointer through the TCP normalizer.

Defaults

The urgent flag and urgent offset are clear by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tcp-map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **tcp-map** command is used along with the Modular Policy Framework infrastructure. Define the class of traffic using the **class-map** command and customize the TCP inspection with **tcp-map** commands. Apply the newTCP map using the **policy-map** command. Activate TCP inspection with **service-policy** commands.

Use the **tcp-map** command to enter tcp-map configuration mode. Use the **urgent-flag** command in tcp-map configuration mode to allow the urgent flag.

The URG flag is used to indicate that the packet contains information that is of higher priority than other data within the stream. The TCP RFC is vague about the exact interpretation of the URG flag, therefore, end systems handle urgent offsets in different ways, which may make the end system vulnerable to attacks. The default behavior is to clear the URG flag and offset.

Examples

The following example shows how to allow the urgent flag:

```
hostname(config)# tcp-map tmap
hostname(config-tcp-map)# urgent-flag allow
hostname(config)# class-map cmap
hostname(config-cmap)# match port tcp eq 513
hostname(config)# policy-map pmap
```

```
hostname(config-pmap)# class cmap
hostname(config-pmap)# set connection advanced-options tmap
hostname(config)# service-policy pmap global
```

Related Commands

Command	Description
class	Specifies a class map to use for traffic classification.
policy-map	Configures a policy; that is, an association of a traffic class and one or more actions.
set connection	Configures connection values.
tcp-map	Creates a TCP map and allows access to tcp-map configuration mode.

user

To create a user in a user group object that supports the Identity Firewall feature, use the **user** command in the user-group object configuration mode. Use the **no** form of this command to remove the user. from the object.

user [*domain_nickname*\]*user_name*

[no] user [*domain_nickname*\]*user_name*

Syntax Description

domain_nickname	(Optional) Specifies the domain in which to add the user.
user_name	Specifies the name for the user. The user name can contain any character including [a-z], [A-Z], [0-9], [!@#$%^&()-_{}.]. If the user name contains a space, you must enclose the name in quotation marks. The *user_name* argument that you specify with the **user** keyword contains an ASCII user name and does not specify an IP address.

Defaults

If you do not specify the *domain_nickname* argument, the user is created in the LOCAL domain configured for the Identity Firewall feature.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Object-group user configuration	•	•	•	•	—

Command History

Release	Modification
8.4(2)	This command was introduced.

Usage Guidelines

The ASA sends an LDAP query to the Active Directory server for user groups globally defined in the Active Directory domain controller. The ASA imports these groups for the Identity Firewall feature. However, the ASA might have localized network resources that are not defined globally that require local user groups with localized security policies. Local user groups can contain nested groups and user groups that are imported from Active Directory. The ASA consolidates local and Active Directory groups. A user can belong to local user groups and user groups imported from Active Directory.

The ASA supports up to 256 user groups (including imported user groups and local user groups).

You active user group objects by including them within an access group, capture, or service policy.

Within a user group object, you can define the following object types:

- **User**—adds a single user to the object-group user. The user can be either a LOCAL user or imported user.

The name of an imported user must be the sAMAccountName, which is unique, rather than the common name (cn), which might not be unique. However, some Active Directory server administrators might require that the sAMAccountName and the cn be identical. In this case, the cn that the ASA displays in the output of the **show user-identity ad-group-member** command can be used for imported users defined by the user object.

- **User-group**—adds an imported user group, which is defined by an external directory server, such as Microsoft Active Directory server, to the group-object user.

  The group name of the user-group must be the sAMAccountName, which is unique, rather than the cn, which might not be unique. However, some Active Directory server administrators might require that the sAMAccountName and the cn be identical. In this case, the cn that the ASA displays in the output of the **show user-identity ad-group-member** command can be used in the *user_group_name* argument specified with the **user-group** keyword.

  Note You can add *domain_nickname**user_group_name* or *domain_nickname**user_ name* directly within a user group object without specifying them in the object first. If the *domain_nickname* is associated with a AAA server, the ASA imports the detailed nested user groups and the users defined in the external directory server, such as the Microsoft Active Directory server, to the ASA when the user object group is activated.

- **Group-object**—adds a group defined locally on the ASA to the object-group user.

  Note When including an object-group within a object-group user object, the ASA does not expand the object-group in access groups even when you enable ACL optimization. The output of the **show object-group** command does not display the hit count, which is available only for regular network object-group when ACL optimization is enabled.

- **Description**—adds a description for the object-group user.

Examples

The following example shows how to use the **user** command with the **user-group object** command to add a user in a user group object for use with the Identity Firewall feature:

```
hostname(config)# object-group user sampleuser1-group
hostname(config-object-group user)# description group members of sampleuser1-group
hostname(config-object-group user)# user-group CSCO\\group.sampleusers-all
hostname(config-object-group user)# user CSCO\user2
hostname(config-object-group user)# exit
hostname(config)# object-group user sampleuser2-group
hostname(config-object-group user)# description group members of sampleuser2-group
hostname(config-object-group user)# group-object sampleuser1-group
hostname(config-object-group user)# user-group CSCO\\group.sampleusers-marketing
hostname(config-object-group user)# user CSCO\user3
```

Related Commands

Command	Description
description	Adds a description to the group created with the **object-group user** command.
group-object	Adds a locally defined object group to a user object group created with the **object-group user** command for use with the Identity Firewall feature.

Command	Description
object-group user	Creates an user group object for the Identity Firewall feature.
user-group	Adds a user group imported from Microsoft Active Directory to the group created with the **object-group user** command.
user-identity enable	Creates the Cisco Identify Firewall instance.

user-alert

To enable broadcast of an urgent message to all clientless SSL VPN users with currently active session, use the **user-alert** command in privileged EXEC mode. To disable the message, use the **no** form of this command.

user-alert *string cancel*

no user-alert

Syntax Description

string	An alpha-numeric.
cancel	Cancels pop-up browser window launch.

Defaults

No message.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

When you issue this command, end users see a pop-up browser window with the configured message. This command causes no change in the ASA configuration file.

Examples

The following example shows how to enable DAP trace debugging:

```
hostname # We will reboot the security appliance at 11:00 p.m. EST time. We apologize for
any inconvenience.
hostname #
```

user-authentication

To enable user authentication, use the **user-authentication enable** command in group-policy configuration mode. To disable user authentication, use the **user-authentication disable** command. To remove the user authentication attribute from the running configuration, use the **no** form of this command. This option allows inheritance of a value for user authentication from another group policy.

When enabled, user authentication requires that individual users behind a hardware client authenticate to gain access to the network across the tunnel.

user-authentication {**enable | disable**}

no user-authentication

Syntax Description

disable	Disables user authentication.
enable	Enables user authentication.

Defaults

User authentication is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Individual users authenticate according to the order of authentication servers that you configure.

If you require user authentication on the primary ASA, be sure to configure it on any backup servers as well.

Examples

The following example shows how to enable user authentication for the group policy named "FirstGroup":

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# user-authentication enable
```

Related Commands

Command	Description
ip-phone-bypass	Lets IP phones connect without undergoing user authentication. Secure unit authentication remains in effect.
leap-bypass	Lets LEAP packets from wireless devices behind a VPN client travel across a VPN tunnel prior to user authentication, when enabled. This lets workstations using Cisco wireless access point devices establish LEAP authentication. Then they authenticate again per user authentication.
secure-unit-authentication	Provides additional security by requiring the VPN client to authenticate with a username and password each time the client initiates a tunnel.
user-authentication-idle-timeout	Sets an idle timeout for individual users. If there is no communication activity on a user connection in the idle timeout period, the ASA terminates the connection.

user-authentication-idle-timeout

To set an idle timeout for individual users behind hardware clients, use the **user-authentication-idle-timeout** command in group-policy configuration mode. To delete the idle timeout value, use the **no** form of this command. This option allows inheritance of an idle timeout value from another group policy. To prevent inheriting an idle timeout value, use the **user-authentication-idle-timeout none** command.

If there is no communication activity by a user behind a hardware client in the idle timeout period, the ASA terminates the connection.

user-authentication-idle-timeout {*minutes* | **none**}

no user-authentication-idle-timeout

Syntax Description

minutes	Specifies the number of minutes in the idle timeout period. The range is from 1 through 35791394 minutes
none	Permits an unlimited idle timeout period. Sets idle timeout with a null value, thereby disallowing an idle timeout. Prevents inheriting an user authentication idle timeout value from a default or specified group policy.

Defaults

30 minutes.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The minimum is 1 minute, the default is 30 minutes, and the maximum is 10,080 minutes.

This timer terminates only the client's access through the VPN tunnel, not the VPN tunnel itself.

The idle timeout indicated in response to the **show uauth** command is always the idle timeout value of the user who authenticated the tunnel on the Cisco Easy VPN remote device.

Examples

The following example shows how to set an idle timeout value of 45 minutes for the group policy named "FirstGroup":

```
hostname(config)# group-policy FirstGroup attributes
```

```
hostname(config-group-policy)# user-authentication-idle-timeout 45
```

Related Commands

Command	Description
user-authentication	Requires users behind hardware clients to identify themselves to the ASA before connecting.

user-group

To add a user group imported from Microsoft Active Directory to the group created with the **object-group user** command for use with the Identity Firewall feature, use the **user-group** command in the **user-group object** configuration mode. Use the **no** form of this command to remove the user group from the object.

user-group [*domain_nickname*\]*user_group_name*

[no] user-group [*domain_nickname*\]*user_group_name*

Syntax Description

domain_nickname	(Optional) Specifies the domain in which to create the user group.
user_group_name	Specifies the name for the user group. The group name can contain any character including [a-z], [A-Z], [0-9], [!@#$%^&()-_{}.]. If the group name contains a space, you must enclose the name in quotation marks.

Defaults

If you do not specify the *domain_nickname* argument, the user group is created in the LOCAL domain configured for the Identity Firewall feature.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Object-group user configuration	•	•	•	•	—

Command History

Release	Modification
8.4(2)	This command was introduced.

Usage Guidelines

The ASA sends an LDAP query to the Active Directory server for user groups globally defined in the Active Directory domain controller. The ASA imports these groups for the Identity Firewall feature. However, the ASA might have localized network resources that are not defined globally that require local user groups with localized security policies. Local user groups can contain nested groups and user groups that are imported from Active Directory. The ASA consolidates local and Active Directory groups. A user can belong to local user groups and user groups imported from Active Directory.

The ASA supports up to 256 user groups (including imported user groups and local user groups).

You activate user group objects by including them within an access group, capture, or service policy.

Within a user group object, you can define the following object types:

- **User**—Adds a single user to the object-group user. The user can be either a LOCAL user or imported user.

The name of an imported user must be the sAMAccountName, which is unique, rather than the common name (cn), which might not be unique. However, some Active Directory server administrators might require that the sAMAccountName and the cn be identical. In this case, the cn that the ASA displays in the output of the **show user-identity ad-group-member** command can be used for imported users defined by the user object.

- **User-group**—Adds an imported user group, which is defined by an external directory server, such as Microsoft Active Directory server, to the group-object user.

  The group name of the user group must be the sAMAccountName, which is unique, rather than the cn, which might not be unique. However, some Active Directory server administrators might require that the sAMAccountName and the cn be identical. In this case, the cn that the ASA displays in the output of the **show user-identity ad-group-member** command can be used in the *user_group_name* argument specified with the **user-group** keyword.

  Note You can add *domain_nickname**user_group_name* or *domain_nickname**user_ name* directly within a user group object without specifying them in the object first. If the *domain_nickname* is associated with a AAA server, the ASA imports the detailed nested user groups and the users defined in the external directory server, such as the Microsoft Active Directory server, to the ASA when the user object group is activated.

- **Group-object**—Adds a group defined locally on the ASA to the object group user.

  Note When including an object group within a object group user object, the ASA does not expand the object group in access groups even when you enable ACL optimization. The output of the **show object-group** command does not display the hit count, which is available only for a regular network object group when ACL optimization is enabled.

- **Description**—Adds a description for the object group user.

Examples

The following example shows how to use the **user-group** command with the **user-group object** command to add a user group in a user group object for use with the Identity Firewall feature:

```
hostname(config)# object-group user sampleuser1-group
hostname(config-object-group user)# description group members of sampleuser1-group
hostname(config-object-group user)# user-group CSCO\\group.sampleusers-all
hostname(config-object-group user)# user CSCO\user2
hostname(config-object-group user)# exit
hostname(config)# object-group user sampleuser2-group
hostname(config-object-group user)# description group members of sampleuser2-group
hostname(config-object-group user)# group-object sampleuser1-group
hostname(config-object-group user)# user-group CSCO\\group.sampleusers-marketing
hostname(config-object-group user)# user CSCO\user3
```

Related Commands

Command	Description
description	Adds a description to the group created with the **object-group user** command.
group-object	Adds a locally defined object group to a user object group created with the **object-group user** command for use with the Identity Firewall feature.

Command	Description
object-group user	Creates a user group object for the Identity Firewall feature.
user	Adds a user to the object group created with the **object-group user** command.
user-identity enable	Creates the Cisco Identify Firewall instance.

user-identity action ad-agent-down

To set the action for the Cisco Identify Firewall instance when the Active Directory Agent is unresponsive, use the **user-identity action ad-agent-down** command in global configuration mode. To remove this action for the Identity Firewall instance, use the **no** form of this command.

user-identity action ad-agent-down disable-user-identity-rule

no user-identity action ad-agent-down disable-user-identity-rule

Syntax Description

This command has no arguments or keywords.

Defaults

By default, this command is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

Specifies the action when the AD Agent is not responding.

When the AD Agent is down and the **user-identity action ad-agent-down** command is configured, the ASA disables the user identity rules associated with the users in that domain. Additionally, the status of all user IP addresses in that domain are marked as disabled in the output displayed by the **show user-identity user** command.

Examples

The following example shows how to enable this action for the Identity Firewall:

```
hostname(config)# user-identity action ad-agent-down disable-user-identity-rule
```

Related Commands

Command	Description
clear configure user-identity	Clears the configuration for the Identity Firewall feature.

user-identity action domain-controller-down

To set the action for the Cisco Identify Firewall instance when the Active Directory domain controller is down, use the **user-identity action domain-controller-down** command in global configuration mode. To remove the action, use the **no** form of this command.

user-identity action domain-controller-down *domain_nickname* **disable-user-identity-rule**

no user-identity action domain-controller-down *domain_nickname* **disable-user-identity-rule**

Syntax Description

domain_nickname	Specifies the domain name for the Identity Firewall.

Defaults

By default, this command is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

Specifies the action when the domain is down because Active Directory domain controller is not responding.

When the domain is down and the **disable-user-identity-rule** keyword is configured, the ASA disables the user identity-IP address mapping for that domain. Additionally, the status of all user IP addresses in that domain are marked as disabled in the output displayed by the **show user-identity user** command.

Examples

The following example shows how to configure this action for the Identity Firewall:

```
hostname(config)# user-identity action domain-controller-down SAMPLE
disable-user-identity-rule
```

Related Commands

Command	Description
clear configure user-identity	Clears the configuration for the Identity Firewall feature.

user-identity action mac-address-mismatch

To set the action for the Cisco Identify Firewall instance when a user's MAC address is found to be inconsistent with the ASA device IP address, use the **user-identity action mac-address mismatch** command in global configuration mode. To remove the action, use the **no** form of this command.

user-identity action mac-address mismatch remove-user-ip

no user-identity action mac-address mismatch remove-user-ip

Syntax Description

This command has no arguments or keywords.

Defaults

By default, the ASA uses **remove-user-ip** when this command is specified.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

Specifies the action when a user's MAC address is found to be inconsistent with the ASA device IP address currently mapped to that MAC address. The action is to disable the effect of user identity rules.

When the **user-identity action mac-address-mismatch** command is configured, the ASA removes the user identity-IP address mapping for that client.

Examples

The following example shows how to configure the Identity Firewall:

```
hostname(config)# user-identity action mac-address-mismatch remove-user-ip
```

Related Commands

Command	Description
clear configure user-identity	Clears the configuration for the Identity Firewall feature.

user-identity action netbios-response-fail

To set the action when a client does not respond to a NetBIOS probe for the Cisco Identify Firewall instance, use the **user-identity action netbios-response-fail** command in global configuration mode. To remove the action, use the **no** form of this command.

user-identity action netbios-response-fail remove-user-ip

no user-identity action netbios-response-fail remove-user-ip

Syntax Description

This command has no arguments or keywords.

Defaults

By default, this command is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

Specifies the action when a client does not respond to a NetBIOS probe. For example, the network connection might be blocked to that client or the client is not active.

When the **user-identity action remove-user-ip** command is configured, the ASA removed the user identity-IP address mapping for that client.

Examples

The following example shows how to configure the Identity Firewall:

```
hostname(config)# user-identity action netbios-response-fail remove-user-ip
```

Related Commands

Command	Description
clear configure user-identity	Clears the configuration for the Identity Firewall feature.

user-identity ad-agent aaa-server

To define the server group of the AD Agent for the Cisco Identify Firewall instance, use the **user-identity ad-agent aaa-server** command in AAA server host configuration mode. To remove the action, use the **no** form of this command.

user-identity user-identity ad-agent aaa-server *aaa_server_group_tag*

no user-identity user-identity ad-agent aaa-server *aaa_server_group_tag*

Syntax Description

aaa_server_group_tag	Specifies the AAA server group associated with the Identity Firewall.

Defaults

This command has no defaults.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Aaa server host configuration	•	•	•	—	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

The first server defined in *aaa_server_group_tag* variable is the primary AD Agent and the second server defined is the secondary AD Agent.

The Identity Firewall supports defining only two AD Agent hosts.

When the ASA detects that the primary AD Agent is down and a secondary agent is specified, it switches to secondary AD Agent. The AAA server for the AD agent uses RADIUS as the communication protocol, and should specify the key attribute for the shared secret between the ASA and AD Agent.

Examples

The following example shows how to define the AD Agent AAA server host for the Identity Firewall:

```
hostname(config-aaa-server-hostkey)# user-identity ad-agent aaa-server adagent
```

Related Commands

Command	Description
clear configure user-identity	Clears the configuration for the Identity Firewall feature.

user-identity ad-agent active-user-database

To define how the ASA retrieves the user identity-IP address mapping information from the AD Agent for the Cisco Identify Firewall instance, use the **user-identity action netbios-response-fail** command in global configuration mode. To remove the configuration, use the **no** form of this command.

user-identity ad-agent active-user-database {**on-demand**|**full-download**}

no user-identity ad-agent active-user-database {**on-demand**|**full-download**}

Syntax Description

This command has no arguments or keywords.

Defaults

By default, the ASA 5505 uses the on-demand option. The other ASA platforms use the full-download option.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

Defines how the ASA retrieves the user identity-IP address mapping information from the AD Agent:

- **full-download**—Specifies that the ASA send a request to the AD Agent to download the entire IP-user mapping table when the ASA starts and then to receive incremental IP-user mapping when users log in and log out.
- **on-demand**—Specifies that the ASA retrieve the user mapping information of an IP address from the AD Agent when the ASA receives a packet that requires a new connection, and the user of its source IP address is not in the user-identity database.

By default, the ASA 5505 uses the on-demand option. The other ASA platforms use the full-download option.

Full downloads are event driven, meaning that subsequent requests to download the database, send just the updates to the user identity-IP address mapping database.

When the ASA registers a change request with the AD Agent, the AD Agent sends a new event to the ASA.

Examples

The following example shows how to configure this option for the Identity Firewall:

```
hostname(config)# user-identity ad-agent active-user-database full-download
```

Related Commands

Command	Description
clear configure user-identity	Clears the configuration for the Identity Firewall feature.

user-identity ad-agent hello-timer

To define the timer between the ASA and the AD Agent for the Cisco Identify Firewall instance, use the **user-identity ad-agent hello-timer** command in global configuration mode. To remove the configuration, use the **no** form of this command.

user-identity ad-agent hello-timer seconds *seconds* **retry-times** *number*

no user-identity ad-agent hello-timer seconds *seconds* **retry-times** *number*

Syntax Description

number	Specifies the number of times to retry the timer.
seconds	Specifies the length of time for the timer.

Defaults

By default, the hello timer is set to 30 seconds and 5 retries.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

Defines the hello timer between the ASA and the AD Agent.

The hello timer between the ASA and the AD Agent defines how frequently the ASA exchanges hello packets. The ASA uses the hello packet to obtain ASA replication status (in-sync or out-of-sync) and domain status (up or down). If the ASA does not receive a response from the AD Agent, it resends a hello packet after the specified interval.

By default, the hello timer is set to 30 seconds and 5 retries.

Examples

The following example shows how to configure this option for the Identity Firewall:

```
hostname(config)# user-identity ad-agent hello-timer seconds 20 retry-times 3
```

Related Commands

Command	Description
clear configure user-identity	Clears the configuration for the Identity Firewall feature.

user-identity default-domain

To specify the default domain for the Cisco Identify Firewall instance, use the **user-identity default-domain** command in global configuration mode. To remove the default domain, use the **no** form of this command.

user-identity default-domain *domain_NetBIOS_name*

no user-identity default-domain *domain_NetBIOS_name*

Syntax Description

domain_NetBIOS_name	Specifies the default domain for the Identity Firewall.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

For *domain_NetBIOS_name,* enter a name up to 32 characters consisting of [a-z], [A-Z], [0-9], [!@#$%^&()-_=+[]{};,.] except '.' and ' ' at the first character. If the domain name contains a space, enclose the entire name in quotation marks. The domain name is not case sensitive.

The default domain is used for all users and user groups when a domain has not been explicitly configured for those users or groups. When a default domain is not specified, the default domain for users and groups is LOCAL. For multiple context mode, you can set a default domain name for each context, as well as within the system execution space.

Note The default domain name you specify must match the NetBIOS domain name configured on the Active Directory domain controller. If the domain name does not match, the AD Agent will incorrectly associate the user identity-IP address mapping with the domain name that you enter when configuring the ASA. To view the NetBIOS domain name, open the Active Directory user event security log in any text editor.

The Identity Firewall uses the LOCAL domain for all locally defined user groups or locally defined users. Users logging in through a web portal (cut-through proxy) are designated as belonging to the Active Directory domain with which they authenticated. Users logging in through a VPN are designated as belonging to the LOCAL domain unless the VPN is authenticated by LDAP with Active Directory, so that the Identity Firewall can associate the users with their Active Directory domain.

Examples

The following example shows how to configure the default domain for the Identity Firewall:

```
hostname(config)# user-identity default-domain SAMPLE
```

Related Commands

Command	Description
clear configure user-identity	Clears the configuration for the Identity Firewall feature.

user-identity domain

To associate the domain for the Cisco Identify Firewall instance, use the **user-identity domain** command in global configuration mode. To remove the domain association, use the **no** form of this command.

user-identity domain *domain_nickname* **aaa-server** *aaa_server_group_tag*

no user-identity *domain_nickname* **aaa-server** *aaa_server_group_tag*

Syntax Description

domain_nickname	Specifies the domain name for the Identity Firewall.
aaa_server_group_tag	Specifies the AAA server group associated with the Identity Firewall.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

Associates the LDAP parameters defined for the AAA server for importing user group queries with the domain name.

For *domain_nickname,* enter a name up to 32 characters consisting of [a-z], [A-Z], [0-9], [!@#$%^&()-_=+[]{};,.] except '.' and ' ' at the first character. If the domain name contains a space, you must enclose that space character in quotation marks. The domain name is not case sensitive.

Examples

The following example shows how to associate the domain for the Identity Firewall:

```
hostname(config)# user-identity domain SAMPLE aaa-server ds
```

Related Commands

Command	Description
clear configure user-identity	Clears the configuration for the Identity Firewall feature.

user-identity enable

To create the Cisco Identify Firewall instance, use the **user-identity enable** command in global configuration mode. To disable the Identity Firewall instance, use the **no** form of this command.

user-identity enable

no user-identity enable

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

No usage guidelines.

Examples

The following example shows how to enable the Identity Firewall:

```
hostname(config)# user-identity enable
```

Related Commands

Command	Description
clear configure user-identity	Clears the configuration for the Identity Firewall feature.

user-identity inactive-user-timer

To specify the amount of time before a user is considered idle for the Cisco Identify Firewall instance, use the **user-identity inactive-user-timer** command in global configuration mode. To remove the timer, use the **no** form of this command.

user-identity inactive-user-timer minutes *minutes*

no user-identity inactive-user-timer minutes *minutes*

Syntax Description

minutes	Specifies the amount of time in minutes before a user is considered idle, meaning the ASA has not received traffic from the user's IP address for the specified amount of time.

Defaults

By default, the idle timeout is set to 60 minutes.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

When the timer expires, the user's IP address is marked as inactive and removed from the local cached user identity-IP address mapping database and the ASA no longer notifies the AD Agent about that IP address removal. Existing traffic is still allowed to pass. When this command is specified, the ASA runs an inactive timer even when the NetBIOS Logout Probe is configured.

Note The Idle Timeout option does not apply to VPN or cut-through-proxy users.

Examples

The following example shows how to configure the Identity Firewall:

```
hostname(config)# user-identity inactive-user-timer minutes 120
```

Related Commands

Command	Description
clear configure user-identity	Clears the configuration for the Identity Firewall feature.

user-identity logout-probe

To enable NetBIOS probing for the Cisco Identify Firewall instance, use the **user-identity logout-probe** command in global configuration mode. To remove the disable probing, use the **no** form of this command.

user-identity logout-probe netbios local-system probe-time minutes *minutes* **retry-interval seconds** *seconds* **retry-count** *times* [**user-not-needed | match-any | exact-match**]

no user-identity logout-probe netbios local-system probe-time minutes *minutes* **retry-interval seconds** *seconds* **retry-count** *times* [**user-not-needed | match-any | exact-match**]

Syntax Description

minutes	Specifies the number of minutes between probes.
seconds	Specifies the length of time for the retry interval.
times	Specifies the number of times to retry the probe.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

To minimize the NetBIOS packets, the ASA only sends a NetBIOS probe to a client when the user has been idle for more than the specified number of minutes.

Set the NetBIOS probe timer from1 to 65535 minutes and the retry interval from 1 to 256 retries. Specify the number of times to retry the probe:

- **match-any**—As long as the NetBIOS response from the client contains the user name of the user assigned to the IP address, the user identity is be considered valid. Specifying this option requires that the client enabled the Messenger service and configured a WINS server.
- **exact-match**—The user name of the user assigned to the IP address must be the only one in the NetBIOS response. Otherwise, the user identity of that IP address is considered invalid. Specifying this option requires that the client enabled the Messenger service and configured a WINS server.
- **user-not-needed**—As long as the ASA received a NetBIOS response from the client the user identity is considered valid.

The Identity Firewall only performs NetBIOS probing for those users identities that are in the active state and exist in at least one security policy. The ASA does not perform NetBIOS probing for clients where the users logged in through cut-through proxy or by using VPN.

Examples

The following example shows how to configure the Identity Firewall:

```
hostname(config)# user-identity logout-probe netbios local-system probe-time minutes 10
retry-interval seconds 10 retry-count 2 user-not-needed
```

Related Commands

Command	Description
clear configure user-identity	Clears the configuration for the Identity Firewall feature.

user-identity monitor

For Cloud Web Security, to download the specified user or group information from the AD agent, use the user-identity monitor command in global configuration mode. To stop monitoring, use the **no** form of this command.

user-identity monitor {**user-group** [*domain-name*\\]*group-name* | **object-group-user** *object-group-name*}

no user-identity monitor {**user-group** [*domain-name*\\]*group-name* | **object-group-user** *object-group-name*}

Syntax Description

user-group [*domain-name*\\] *group-name*	Specifies a group name inline. Although you specify 2 backslashes (\\) between the domain and the group, the ASA modifies the name to include only one backslash when it sends it to Cloud Web Security, to comply with Cloud Web Security notation conventions.
object-group-user *object-group-name*	Specifies an **object-group user** name. This group can include multiple groups.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

When you use the Identity Firewall feature, the ASA only downloads user identity information from the AD server for users and groups included in active ACLs; the ACL must be used in a feature such as an access rule, AAA rule, service policy rule, or other feature to be considered active. Because Cloud Web Security can base its policy on user identity, you may need to download groups that are not part of an active ACL to get full Identity Firewall coverage for all your users. For example, although you can configure your Cloud Web Security service policy rule to use an ACL with users and groups, thus activating any relevant groups, it is not required; you could use an ACL based entirely on IP addresses. The user identity monitor feature lets you download group information directly from the AD Agent.

The ASA can only monitor a maximum of 512 groups, including those configured for the user identity monitor and those monitored through active ACLs.

Examples

The following example monitors the CISCO\\Engineering usergroup:

```
hostname(config)# user-identity monitor user-group CISCO\\Engineering
```

Related Commands

Command	Description
class-map type inspect scansafe	Creates an inspection class map for whitelisted users and groups.
default user group	Specifies the default username and/or group if the ASA cannot determine the identity of the user coming into the ASA.
http[**s**] (parameters)	Specifies the service type for the inspection policy map, either HTTP or HTTPS.
inspect scansafe	Enables Cloud Web Security inspection on the traffic in a class.
license	Configures the authentication key that the ASA sends to the Cloud Web Security proxy servers to indicate from which organization the request comes.
match user group	Matches a user or group for a whitelist.
policy-map type inspect scansafe	Creates an inspection policy map so you can configure essential parameters for the rule and also optionally identify the whitelist.
retry-count	Enters the retry counter value, which is the amount of time that the ASA waits before polling the Cloud Web Security proxy server to check its availability.
scansafe	In multiple context mode, allows Cloud Web Security per context.
scansafe general-options	Configures general Cloud Web Security server options.
server {**primary** | **backup**}	Configures the fully qualified domain name or IP address of the primary or backup Cloud Web Security proxy servers.
show conn scansafe	Shows all Cloud Web Security connections, as noted by the capitol Z flag.
show scansafe server	Shows the status of the server, whether it's the current active server, the backup server, or unreachable.
show scansafe statistics	Shows total and current HTTP connections.
whitelist	Performs the whitelist action on the class of traffic.

user-identity poll-import-user-group-timer

To specify the amount of time before the ASA queries the Active Directory server for user group information for the Cisco Identify Firewall instance, use the **user-identity poll-import-user-group-timer** command in global configuration mode. To remove the timer, use the **no** form of this command.

user-identity poll-import-user-group-timer hours *hours*

no user-identity poll-import-user-group-timer hours *hours*

Syntax Description

hours	Sets the hours for the poll timer.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

Specifies the amount of time before the ASA queries the Active Directory server for user group information.

If a user is added to or deleted from to an Active Directory group, the ASA received the updated user group after import group timer runs.

By default, the poll timer is 8 hours.

To immediately update user group information, enter the **user-identity update import-user** command:

Examples

The following example shows how to configure the Identity Firewall:

```
hostname(config)# user-identity poll-import-user-group-timer hours 1
```

Related Commands

Command	Description
clear configure user-identity	Clears the configuration for the Identity Firewall feature.

user-identity static user

To create a new user-IP address mapping or set a user's IP address to inactive for the Cisco Identify Firewall feature, use the **user-identity static user** command in global configuration mode. To remove this configuration for the Identity Firewall, use the **no** form of this command.

user-identity static user [*domain*\] *user_name host_ip*

no user-identity static user [*domain*\] *user_name host_ip*

Syntax Description

domain	Creates a new user-IP address mapping or sets the IP address to inactive for the user in the specified domain.
host_ip	Specifies the IP address of the user for which to create a new user-IP address mapping or to set as inactive.
user_name	Specifies the user name for which to create a new user-IP address mapping or the user or sets the users IP address to inactive.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

There are no usage guidelines for this command.

Examples

The following example shows how to enable this action for the Identity Firewall:

```
hostname(config)# user-identity static user SAMPLE\user1 192.168.1.101
```

Related Commands

Command	Description
clear configure user-identity	Clears the configuration for the Identity Firewall feature.

user-identity update active-user-database

To download the entire active-user database from the Active Directory Agent, use the **user-identity update active-user-database** command in global configuration mode.

user-identity update active-user-database [**timeout minutes** *minutes*]

Syntax Description

minutes	Specifies the number of minutes for the timeout.

Defaults

The default timeout is 5 minutes.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

This command downloads the entire active-user database from Active Directory Agent.

This command starts the update operation, generates a starting update log and returns immediately. When the update operation finishes or is aborted at timer expiration, another syslog message is generated. Only one outstanding update operation is allowed. Rerunning the command displays an error message.

When the command finishes running, the ASA displays [Done] at the command prompt then generates a syslog message.

Examples

The following example shows how to enable this action for the Identity Firewall:

```
hostname# user-identity update active-user-database
ERROR: one update active-user-database operation is already in progress
[Done] user-identity update active-user-database
```

Related Commands

Command	Description
clear configure user-identity	Clears the configuration for the Identity Firewall feature.

user-identity update import-user

To download the entire active user database from the Active Directory Agent, use the **user-identity update active-user-database** command in global configuration mode.

user-identity update import-user [[*domain_nickname*\\] *user_group_name* [**timeout seconds** *seconds*]]

Syntax Description

domain_nickname	Specifies the domain of the group to update.
seconds	Specifies the number of seconds for the timeout.
user_group_name	When *user_group_name* is specified, only the specified import-user group is updated. Only activated groups (for example, groups in an access group, access list, capture, or service policy) can be updated. If the given group is not activated, this command rejects the operation. If the specified group has multiple levels of hierarchies, recursive LDAP queries are conducted. If *user_group_name* is not specified, the ASA starts the LDAP update service immediately and tries to periodically update all activated groups.

Defaults

The ASA retries the update up to 5 times and generates warning messages as necessary.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

This command updates the specified import user group database by querying the Active Directory server immediately without waiting for the expiration of the poll import user group timer. There is no command to update the local user group, because the group ID database is updated whenever the local user group has a configuration change.

This command does not block the console to wait for the return of the LDAP query.

This command starts the update operation, generates a starting update log and returns immediately. When the update operation finishes or is aborted at timer expiration, another syslog message is generated. Only one outstanding update operation is allowed. Rerunning the command displays an error message.

If the LDAP query is successful, the ASA stores retrieved user data in the local database and changes the user/group association accordingly. If the update operation is successful, you can run the **show user-identity user-of-group** *domain**group* command to list all stored users under this group.

The ASA checks after each update for all imported groups. If an activated Active Directory group does not exist in Active Directory, the ASA generates a syslog message.

If *user_group_name* is not specified, the ASA starts the LDAP update service immediately and tries to periodically update all activated groups. The LDAP update service runs in the background and periodically updates import user groups via an LDAP query on the Active Directory server.

At system boot up time, if there are import user groups defined in access groups, the ASA retrieves user/group data via LDAP queries. If errors occur during the update, the ASA retries the update up to 5 times and generates warning messages as necessary.

When the command finishes running, the ASA displays [Done] at the command prompt then generates a syslog message.

Examples

The following example shows how to enable this action for the Identity Firewall:

```
hostname# user-identity update import-user group.sample-group1
ERROR: Update import-user group is already in progress
[Done] user-identity update import-user group.sample-group1
```

Related Commands

Command	Description
clear configure user-identity	Clears the configuration for the Identity Firewall feature.

user-identity user-not-found

To enable user-not-found tracking for the Cisco Identify Firewall instance, use the **user-identity user-not-found** command in global configuration mode. To remove this tracking for the Identity Firewall instance, use the **no** form of this command.

user-identity user-not-found enable

no user-identity user-not-found enable

Syntax Description

This command has no arguments or keywords.

Defaults

By default, this command is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

Only the last 1024 IP addresses are tracked.

Examples

The following example shows how to enable this action for the Identity Firewall:

```
hostname(config)# user-identity user-not-found enable
```

Related Commands

Command	Description
clear configure user-identity	Clears the configuration for the Identity Firewall feature.

user-message

To specify a text message to display when a DAP record is selected, use the user-message command in dynamic-access-policy-record mode. To remove this message, use the **no** version of the command. If you use the command more than once for the same DAP record, the newer message replaces the previous message.

user-message *message*

no user-message

Syntax Description

message	The message for users assigned to this DAP record. Maximum 128 characters. If the message contains spaces, enclose it in double quotation marks.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Dynamic-access-policy- record	•	•	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

For a successful SSL VPN connection, the portal page displays a flashing, clickable icon that lets the user see the message(s) associated with the connection. If the connection is terminated from a DAP policy (action = terminate), and if there is a user message configured in that DAP record, then that message displays on the login screen.

If more than one DAP record applies to a connection, the ASA combines the applicable user messages and displays them as a single string.

Examples

The following example shows how to set a user message of “Hello Money Managers” for the DAP record called Finance.

```
hostname (config) config-dynamic-access-policy-record Finance
hostname(config-dynamic-access-policy-record)# user-message “Hello Money Managers”
hostname(config-dynamic-access-policy-record)#
```

Related Commands

Command	Description
dynamic-access-policy-record	Creates a DAP record.
show running-config dynamic-access-policy-record [*name*]	Displays the running configuration for all DAP records, or for the named DAP record.

user-parameter

To specify the name of the HTTP POST request parameter in which a username must be submitted for SSO authentication, use the **user-parameter** command in aaa-server-host configuration mode.

user-parameter *name*

Note To configure SSO with the HTTP protocol correctly, you must have a thorough working knowledge of authentication and HTTP protocol exchanges.

Syntax Description

string	The name of the username parameter included in the HTTP POST request. The maximum name size is 128 characters.

Defaults

There is no default value or behavior.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Aaa-server-host configuration	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

This is an SSO with HTTP Forms command. The WebVPN server of the ASA uses an HTTP POST request to submit a single sign-on authentication request to an SSO server. The required command **user-parameter** specifies that the HTTP POST request must include a username parameter for SSO authentication.

Note At login, the user enters the actual name value which is entered into the HTTP POST request and passed on to the authenticating web server.

Examples

The following example, entered in aaa-server-host configuration mode, specifies that the username parameter userid be included in the HTTP POST request used for SSO authentication:

```
hostname(config)# aaa-server testgrp1 host example.com
hostname(config-aaa-server-host)# user-parameter userid
hostname(config-aaa-server-host)#
```

Related Commands

Command	Description
action-uri	Specifies a web server URI to receive a username and password for single sign-on authentication.
auth-cookie-name	Specifies a name for the authentication cookie.
hidden-parameter	Creates hidden parameters for exchange with the authenticating web server.
password-parameter	Specifies the name of the HTTP POST request parameter in which a user password must be submitted for SSO authentication.
start-url	Specifies the URL at which to retrieve a pre-login cookie.

user-statistics

To activate the collection of user statistics by MPF and match lookup actions for the Identify Firewall, use the **user-statistics** command in policy-map configuration mode. To remove collection of user statistics, use the **no** form of this command.

user-statistics [**accounting | scanning**]

no user-statistics [**accounting | scanning**]

Syntax Description

accounting	(Optional) Specifies that the ASA collect the sent packet count, sent drop count, and received packet count.
scanning	(Optional) Specifies that the ASA collect only the sent drop count.

Defaults

By default, this command is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Policy-map configuration	•	•	•	•	—

Command History

Release	Modification
8.4(2)	The command was introduced.

Usage Guidelines

When you configure a policy map to collect user statistics, the ASA collects detailed statistics for selected users. When you specify the **user-statistics** command without the **accounting** or **scanning** keywords, the ASA collects both accounting and scanning statistics.

Examples

The following example shows how to activate user statistics for the Identity Firewall:

```
hostname(config)# class-map c-identity-example-1
hostname(config-cmap)# match access-list identity-example-1
hostname(config-cmap)# exit
hostname(config)# policy-map p-identity-example-1
hostname(config-pmap)# class c-identity-example-1
hostname(config-pmap)# user-statistics accounting
hostname(config-pmap)# exit
hostname(config)# service-policy p-identity-example-1 interface outside
```

Related Commands

Command	Description
policy-map	Assigns actions to traffic that you identified with a Layer 3/4 class map when using the Modular Policy Framework.
service-policy(**global**)	Activates a policy map globally on all interfaces or on a targeted interface.
show service-policy [**user-statistics**]	Displays user statistics for configured service policies when you enable user-statistics scanning or accounting for the Identity Firewall.
show user-identity ip-of-user [**detail**]	Displays received packets, sent packets, and drops statistics for the IP address for a specified user when you enable user statistics scanning or accounting for the Identity Firewall.
show user-identity user active [**detail**]	Displays received packets, sent packets and drops statistics in the specified time period for active users when you enable user statistics scanning or accounting for the Identity Firewall.
show user-identity user-of-ip [**detail**]	Displays received packets, sent packets, and drops statistics for the user for a specified IP address when you enable user statistics scanning or accounting for the Identity Firewall.
user-identity enable	Creates the Identity Firewall instance.

user-storage

To store personalized user information between clientless SSL VPN sessions, use the **user storage** command in group-policy webvpn configuration mode. To disable user storage, use the **no** form of the command.

user-storage *NETFS-location*

no user-storage]

Syntax Description

NETFS-location	Specifies a file system desination in the form proto://user:password@host:port/path If the username and password are embedded in the NETFS-location then the password input is treated as clear.

Defaults

User storage is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy webvpn mode	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.
8.4(6)	Prevented the password being shown in clear text during **show-run**.

Usage Guidelines

User-storage enables you to store cached credentials and cookies at a location other than the ASA flash. This command provides single sign on for personal bookmarks of a clientless SSL VPN user. The user credentials are stored in an encrypted format on the FTP/CIFS/SMB server as a <user_id>.cps file that is not decryptable.

Although the username, password, and preshared key are shown in the configuration, this poses no security risk because the ASA stores this information in encrypted form, using an internal algorithm.

If data is encrypted on an external FTP or SMB server, you can define personal bookmarks within the portal page by selecting add bookmark (for example: user-storage cifs://jdoe:test@10.130.60.49/SharedDocs). You can create personalized URLs for all plugin protocols as well.

Note If you have a cluster of ASAs that all refer to the same FTP/CIFS/SMB server and use the same "storage-key," you can access the bookmarks through any of the ASAs in the cluster.

Examples

The following example shows how to set user storage for a user called newuser with a password of 12345678 at a file share called anyshare, and a path of anyfiler02a/new_share:

```
hostname(config)# wgroup-policy DFLTGrpPolicy attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# user-storage cifs://newuser:12345678@anyfiler02a/new_share
hostname(config-group_webvpn)#
```

Related Commands

Command	Description
storage-key	Specifies a storage key to protect the data stored between sessions.
storage-objects	Configures storage objects for the data stored between sessions.

username (8.4(3) and earlier)

To add a user to the ASA database, enter the **username** command in global configuration mode. To remove a user, use the **no** version of this command with the username that you want to remove. To remove all usernames, use the **no** version of this command without appending a username.

username *name* {**nopassword** | **password** *password* [**mschap** | **encrypted** | **nt-encrypted**]} [**privilege** *priv_level*]

no username *name*

Syntax Description

encrypted	Indicates that the password is encrypted (if you did not specify **mschap**). When you define a password in the **username** command, the ASA encrypts it when it saves it to the configuration for security purposes. When you enter the **show running-config** command, the **username** command does not show the actual password; it shows the encrypted password followed by the **encrypted** keword. For example, if you enter the password "test," the **show running-config** command output would appear to be something like the following: `username pat password rvEdRh0xPC8bel7s encrypted` The only time you would actually enter the **encrypted** keyword at the CLI is if you are cutting and pasting a configuration to another ASA and you are using the same password.
mschap	Specifies that the password will be converted to unicode and hashed using MD4 after you enter it. Use this keyword if users are authenticated using MSCHAPv1 or MSCHAPv2.
name	Specifies the name of the user as a string from 4 to 64 characters in length.
nopassword	Indicates that this user needs no password.
nt-encrypted	Indicates that the password is encrypted for use with MSCHAPv1 or MSCHAPv2. If you specified the **mschap** keyword when you added the user, then this keyword is displayed instead of the **encrypted** keyword when you view the configuration using the **show running-config** command. When you define a password in the **username** command, the ASA encrypts it when it saves it to the configuration for security purposes. When you enter the **show running-config** command, the **username** command does not show the actual password; it shows the encrypted password followed by the **nt-encrypted** keword. For example, if you enter the password "test," the **show running-config** display would appear to be something like the following: `username pat password DLaUiAX3l78qgoB5c7iVNw== nt-encrypted` The only time you would actually enter the **nt-encrypted** keyword at the CLI is if you are cutting and pasting a configuration to another ASA and you are using the same password.
password *password*	Sets the password as a string from 3 to 32 characters in length.
privilege *priv_level*	Sets a privilege level for this use from 0 to 15 (lowest to highest). The default privilege level is 2. This privilege level is used with command authorization.

Defaults

The default privilege level is 2.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0.1	This command was introduced.
7.2(1)	The **mschap** and **nt-encrypted** keywords were added.

Usage Guidelines

The **login** command uses this database for authentication.

If you add users to the local database who can gain access to the CLI and whom you do not want to enter privileged mode, you should enable command authorization. (See the **aaa authorization command** command.) Without command authorization, users can access privileged EXEC mode (and all commands) at the CLI using their own password if their privilege level is 2 or greater (2 is the default). Alternatively, you can use AAA authentication so the user will not be able to use the **login** command, or you can set all local users to level 1 so you can control who can use the **enable** password to access privileged EXEC mode.

By default, VPN users that you add with this command have no attributes or group policy association. You must configure all values explicitly using the **username attributes** command.

When password authentication policy is enabled, you can no longer change your own password or delete your own account with the **username** command. You can, however, change your password with the **change-password** command.

Examples

The following example shows how to configure a user named “anyuser” with a password of 12345678 and a privilege level of 12:

```
hostname(config)# username anyuser password 12345678 privilege 12
```

Related Commands

Command	Description
aaa authorization command	Configues command authorization.
clear config username	Clears the configuration for a specific user or all users.
show running-config username	Displays the running configuration for a specific user or all users.
username attributes	Enters username attributes mode, which lets you configure attributes for specific users.
webvpn	Enters config-group-webvpn mode, which lets you configure the WebVPN attributes for the specified group.

username (8.4(4.1) and later)

To add a user to the ASA database, enter the **username** command in global configuration mode. To remove a user, use the **no** version of this command with the username that you want to remove. To remove all usernames, use the **no** version of this command without appending a username. To enable the system to restore a password creation date at boot time or when copying a file to the running configuration, enter the **username** command in non-interactive configuration mode.

[no] username *name* {**nopassword** | **password** *password* [**mschap** | **encrypted** | **nt-encrypted**]} [**privilege** *priv_level*]

username *name* [**password-date** *date*]

Syntax Description

encrypted	Indicates that the password is encrypted (if you did not specify **mschap**). When you define a password in the **username** command, the ASA encrypts it when it saves it to the configuration for security purposes. When you enter the **show running-config** command, the **username** command does not show the actual password; it shows the encrypted password followed by the **encrypted** keword. For example, if you enter the password "test," the **show running-config** command output would appear to be something like the following: `username pat password rvEdRh0xPC8bel7s encrypted` The only time you would actually enter the **encrypted** keyword at the CLI is if you are cutting and pasting a configuration to another ASA and you are using the same password.
mschap	Specifies that the password will be converted to Unicode and hashed using MD4 after you enter it. Use this keyword if users are authenticated using MSCHAPv1 or MSCHAPv2.
name	Specifies the name of the user as a string from 4 to 64 characters in length.
nopassword	Indicates that this user needs no password.
nt-encrypted	Indicates that the password is encrypted for use with MSCHAPv1 or MSCHAPv2. If you specified the **mschap** keyword when you added the user, then this keyword is displayed instead of the **encrypted** keyword when you view the configuration using the **show running-config** command. When you define a password in the **username** command, the ASA encrypts it when it saves it to the configuration for security purposes. When you enter the **show running-config** command, the **username** command does not show the actual password; it shows the encrypted password followed by the **nt-encrypted** keword. For example, if you enter the password "test," the **show running-config** display would appear to be something like the following: `username pat password DLaUiAX3178qgoB5c7iVNw== nt-encrypted` The only time you would actually enter the **nt-encrypted** keyword at the CLI is if you are cutting and pasting a configuration to another ASA and you are using the same password.
password *password*	Sets the password as a string from 3 to 32 characters in length.

password-date *date*	Enables the system to restore password creation dates as usernames are read in during bootup. If not present, the password date is set to the current date. The date is in the format, mmm-dd-yyyy.
privilege *priv_level*	Sets a privilege level for this use from 0 to 15 (lowest to highest). The default privilege level is 2. This privilege level is used with command authorization.

Defaults

The default privilege level is 2.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—
Non-interactive configuration	•	•	•	•	—

Command History

Release	Modification
7.0.1	This command was introduced.
7.2(1)	The **mschap** and **nt-encrypted** keywords were added.
9.1(2)	The **password-date** *date* option was added.

Usage Guidelines

The **login** command uses this database for authentication.

If you add users to the local database who can gain access to the CLI and whom you do not want to enter privileged mode, you should enable command authorization. (See the **aaa authorization command** command.) Without command authorization, users can access privileged EXEC mode (and all commands) at the CLI using their own password if their privilege level is 2 or greater (2 is the default). Alternatively, you can use AAA authentication so the user will not be able to use the **login** command, or you can set all local users to level 1 so you can control who can use the **enable** password to access privileged EXEC mode.

By default, VPN users that you add with this command have no attributes or group policy association. You must configure all values explicitly using the **username attributes** command.

When password authentication policy is enabled, you can no longer change your own password or delete your own account with the **username** command. You can, however, change your password with the **change-password** command.

To display the username password date, use the **show running-config all username** command.

Note You cannot enter **password-date** values from a CLI prompt; therefore, no interactive help exists for this keyword. The password date is saved to the startup configuration only if the password policy lifetime is not zero. This means that password dates are saved only if password expiration is configured. You cannot use the **password-date** option to prevent users from changing password creation dates.

Examples

The following example shows how to configure a user named “anyuser” with a password of 12345678 and a privilege level of 12:

```
hostname(config)# username anyuser password 12345678 privilege 12
```

Related Commands

Command	Description
aaa authorization command	Configues command authorization.
clear config username	Clears the configuration for a particular user or for all users.
show running-config username	Displays the running configuration for a particular user or for all users.
username attributes	Enters username attributes mode, which lets you configure attributes for specific users.
webvpn	Enters config-group-webvpn mode, in which you can configure the WebVPN attributes for the specified group.

username attributes

To enter the username attributes mode, use the **username attributes** command in username configuration mode. To remove all attributes for a particular user, use the **no** form of this command and append the username. To remove all attributes for all users, use the **no** form of this command without appending a username. The attributes mode lets you configure attribute-value pairs for a specified user.

username {*name*} **attributes**

no username [*name*] **attributes**

Syntax Description

name	Provides the name of the user.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Username configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.0(2)	The **service-type** attribute was added.
9.1(2)	The **ssh authentication** {**pkf** [**nointeractive**] | **publickey** *key* [**hashed**]} attribute was added.

Usage Guidelines

The internal user authentication database consists of the users entered with the **username** command. The **login** command uses this database for authentication. You can configure the username attributes using either the **username** command or the **username attributes** command.

The command syntax in username configuration mode has the following characteristics in common:

- The **no** form removes the attribute from the running configuration.
- The **none** keyword also removes the attribute from the running configuration. But it does so by setting the attribute to a null value, thereby preventing inheritance.
- Boolean attributes have explicit syntax for enabled and disabled settings.

The **username attributes** command enters username attributes mode, in which you can configure any of the following attributes:

Attribute	Function
group-lock	Names an existing tunnel group with which the user is required to connect.
password-storage	Enables or disables storage of the login password on the client system.
service-type [**remote-access** | **admin** | **nas-prompt**]	Restricts console login and enables login for users who are assigned the appropriate level. The **remote-access** option specifies basic AAA sevices for remote access. The **admin** option specifies AAA serives, login console privileges, EXEC mode privileges, the enable privilege, and CLI privileges. The **nas-prompt** option specifies AAA services, login console privileges, EXEC mode privileges, but no enable privileges.
ssh authentication {**pkf** [**nointeractive**] | **publickey** *key* [**hashed**]}	Enables public key authentication on a per-user basis. The value of the *key* argument can refer to the following: • When the *key* argument is supplied and the hashed tag is not specified, the value of the key must be a base64 encoded public key that is generated by SSH key generation software that can generate SSH-RSA raw keys (that is, with no certificates). After you submit the base64 encoded public key, that key is then hashed via SHA-256 and the corresponding 32-byte hash is used for all further comparisons. • When the *key* argument is supplied and the hashed tag is specified, the value of the key must have been previously hashed with SHA-256 and be 32 bytes long, with each byte separated by a colon (for parsing purposes). The **pkf** option enables you to authenticate using 4096-bit RSA keys as an SSH public key file (PKF). This option is not restricted to 4096-bit RSA keys, but can be used for any size less than or equal to 4096-bit RSA keys. The **nointeractive** option suppresses all prompts when importing an SSH public key formatted key. This noninteractive data entry mode is only intended for ASDM use. The *key* field and the **hashed** keyword are only available with the **publickey** option, and the **nointeractive** keyword is only available with the **pkf** option. When you save the configuration, the hashed key value is saved to the configuration and used when the ASA is rebooted. **Note** You can use the PKF option when failover is enabled, but the PKF data is not automatically replicated to the standby system. You must enter the **write standby** command to synchronize the PKF setting to the standby system in the failover pair.
vpn-access-hours	Specifies the name of a configured time-range policy.
vpn-filter	Specifies the name of a user-specific ACL.

Attribute	Function
vpn-framed-ip-address	Specifies the IP address and the netmask to be assigned to the client.
vpn-group-policy	Specifies the name of a group policy from which to inherit attributes.
vpn-idle-timeout [**alert-interval**]	Specifies the idle timeout period in minutes, or **none** to disable it. Optionally specifies a pre-timeout alert interval.
vpn-session-timeout [**alert-interval**]	Specifies the maximum user connection time in minutes, or **none** for unlimited time. Optionally specifies a pre-timeout alert interval.
vpn-simultaneous-logins	Specifies the maximum number of simultaneous logins allowed.
vpn-tunnel-protocol	Specifies permitted tunneling protocols.
webvpn	Enters username webvpn configuration mode, in which you configure WebVPN attributes.

You configure webvpn-mode attributes for the username by entering the **username attributes** command and then entering the **webvpn** command in username webvpn configuration mode. See the **webvpn** command (group-policy attributes and username attributes modes) for details.

Examples

The following example shows how to enter username attributes configuration mode for a user named "anyuser":

```
hostname(config)# username anyuser attributes
hostname(config-username)#
```

Related Commands

Command	Description
clear config username	Clears the username database.
show running-config username	Displays the running configuration for a particular user or for all users.
username	Adds a user to the ASA database.
webvpn	Enters webvpn configuration mode, in which you can configure the WebVPN attributes for the specified group.

username-from-certificate

To specify the field in a certificate to use as the username for authorization, use the **username-from-certificate** command in tunnel-group general-attributes mode. The DN of the peer certificate used as username for authorization

To remove the attribute from the configuration and restore default values, use the **no** form of this command.

username-from-certificate {*primary-attr* [*secondary-attr*] | **use-entire-name**}

no username-from-certificate

Syntax Description

primary-attr	Specifies the attribute to use to derive a username for an authorization query from a certificate. If pre-fill-username is enabled, the derived name can also be used in an authentication query.
secondary-attr	(Optional) Specifies an additional attribute to use with the primary attribute to derive a username for an authentication or authorization query from a digital certificate. If pre-fill-username is enable, the derived name can also be used in an authentication query.
use-entire-name	Specifies that the ASA must use the entire subject DN (RFC1779) to derive a name for an authorization query from a digital certificate.
use-script	Specifies the use of a script file generated by ASDM to extract the DN fields from a certificate for use as a username.

Defaults

The default value for the primary attribute is CN (Common Name).

The default value for the secondary attribute is OU (Organization Unit).

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tunnel-group general-attributes configuration	•	—	•	—	—

Command History

Release	Modification
8.0(4)	This command was introduced.

Usage Guidelines

This command selects the field in the certificate to use as the username. It replaces the deprecated **authorization-dn-attributes** command in Release 8.0.4 and following. The **username-from-certificate** command forces the security appliance to use the specified certificate field as the username for username/password authorization.

To use this derived username in the pre-fill username from certificate feature for username/passwordauthentication or authorization, you must also configure the **pre-fill-username** command in tunnel-group webvpn-attributes mode. That is, to use the pre-fill username feature, you must configure both commands.

Possible values for primary and secondary attributes include the following:

Attribute	Definition
C	Country: the two-letter country abbreviation. These codes conform to ISO 3166 country abbreviations.
CN	Common Name: the name of a person, system, or other entity. Not available a s a secondary attribute.
DNQ	Domain Name Qualifier.
EA	E-mail address.
GENQ	Generational Qualifier.
GN	Given Name.
I	Initials.
L	Locality: the city or town where the organization is located.
N	Name.
O	Organization: the name of the company, institution, agency, association or other entity.
OU	Organizational Unit: the subgroup within the organization (O).
SER	Serial Number.
SN	Surname.
SP	State/Province: the state or province where the organization is located
T	Title.
UID	User Identifier.
UPN	User Principal Name.
use-entire-name	Use entire DN name. Not available a s a secondary attribute.
use-script	Use a script file generated by ASDM.

Examples

The following example, entered in global configuration mode, creates an IPsec remote access tunnel group named remotegrp and specifies the use of CN (Common Name) as the primary attribute and OU as the secondary attribute to use to derive a name for an authorization query from a digital certificate:

```
hostname(config)# tunnel-group remotegrp type ipsec_ra
hostname(config)# tunnel-group remotegrp general-attributes
hostname(config-tunnel-general)# username-from-certificate CN OU
hostname(config-tunnel-general)#
```

The following example shows how to modify the tunnel-group attributes to configure the pre-fill username.

```
username-from-certificate {use-entire-name | use-script | <primary-attr>} [secondary-attr]
secondary-username-from-certificate {use-entire-name | use-script | <primary-attr>}
[secondary-attr] ; used only for double-authentication
```

Related Commands

Command	Description
pre-fill-username	Enables the pre-fill username feature.
show running-config tunnel-group	Shows the indicated tunnel-group configuration.
tunnel-group general-attributes	Specifies the general attributes for the named tunnel-group.

username-prompt

To customize the username prompt of the WebVPN page login box that is displayed to WebVPN users when they connect to the security appliance, use the **username-prompt** command from webvpn customization mode:

username-prompt {**text** | **style**} *value*

[**no**] **username-prompt** {**text** | **style**} *value*

To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command.

Syntax Description

text	Specifies you are changing the text.
style	Specifies you are changing the style.
value	The actual text to display (maximum 256 characters), or Cascading Style Sheet (CSS) parameters (maximum 256 characters).

Defaults

The default is text of the username prompt is “USERNAME:”.

The default style of the username prompt is color:black;font-weight:bold;text-align:right.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Webvpn customization	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

The **style** option is expressed as any valid Cascading Style Sheet (CSS) parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium (W3C) website at www.w3.org. Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at www.w3.org/TR/CSS21/propidx.html.

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.
- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma separated entry indicates the level of intensity of each color to combine with the others.

- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.

Note To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

Examples

In the following example, the text is changed to "Corporate Username:", and the default style is changed with the font weight increased to bolder:

```
hostname(config)# webvpn
hostname(config-webvpn)# customization cisco
hostname(config-webvpn-custom)# username-prompt text Corporate Username:
hostname(config-webvpn-custom)# username-prompt style font-weight:bolder
```

Related Commands

Command	Description
group-prompt	Customizes the group prompt of the WebVPN page.
password-prompt	Customizes the password prompt of the WebVPN page.

CHAPTER 67

validate-attribute through vpnsetup Commands

validate-attribute

To validate RADIUS attributes when using RADIUS accounting, use the **validate attribute** command in radius-accounting parameter configuration mode, which is accessed by using the **inspect radius-accounting** command.

This option is disabled by default.

validate-attribute [*attribute_number*]

no validate-attribute [*attribute_number*]

Syntax Description

attribute_number	The RADIUS attribute to be validated with RADIUS accounting. Values range from 1-191. Vendor Specific Attributes are not supported.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Radius-accounting parameter configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

When this command is configured, the security appliance will also do a match on these attributes in addition to the Framed IP attribute. Multiple instances of this command are allowed.

You can find a list of RADIUS attribute types here:

http://www.iana.org/assignments/radius-types

Examples

The following example shows how to enable RADIUS accounting for the user name RADIUS attribute:

```
hostname(config)# policy-map type inspect radius-accounting ra
hostname(config-pmap)# parameters
hostname(config-pmap-p)# validate attribute 1
```

Related Commands

Commands	Description
inspect radius-accounting	Sets inspection for RADIUS accounting.
parameters	Sets parameters for an inspection policy map.

validation-policy (crypto ca trustpoint)

To specify the conditions under which a trustpoint can be used to validate the certificates associated with an incoming user connection, use the **validation-policy command** in crypto ca trustpoint configuration mode. To specify that the trustpoint cannot be used for the named condition, use the **no** form of the command.

[no] validation-policy {ssl-client | ipsec-client} [no-chain] [subordinate-only]

Syntax Description

ipsec-client	Specifies that the Certificate Authority (CA) certificate and policy associated with the trustpoint can be used to validate IPsec connections.
no-chain	Disables the chaining of subordinate certificates that are not resident on the security device.
ssl-client	Specifies that the Certificate Authority (CA) certificate and policy associated with the trustpoint can be used to validate SSL connections.
subordinate-only	Disables validation of client certificates issued directly from the CA represented by this trustpoint.

Defaults

No default value or behavior.

Command Modes

The following table shows the modes in which you can enter the command:

Command History

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Crypto ca trustpoint configuration	•	•	•	•	—

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

Remote-access VPNs can use Secure Sockets Layer (SSL) VPN, IP Security (IPsec), or both, depending on deployment requirements, to permit access to virtually any network application or resource. The **validation-policy** command allows you to specify the protocol type permitted to access on-board CA certificates.

The **no-chain** option with this command prevents a security applicance from supporting subordinate CA certificates that are not configured as trustpoints on the security appliance.

The security appliance can have two trustpoints with the same CA resulting in two different identity certificates from the same CA. This option is disabled automatically if the trustpoint is authenticated to a CA that is already associated with another trustpoint that has enabled this feature. This prevents ambiguity in the choice of path-validation parameters. If the user attempts to activate this feature on a trustpoint that has been authenticated to a CA already associated with another trustpoint that has enabled this feature, the action is not permitted. No two trustpoints can have this setting enabled and be authenticated to the same CA.

Examples

The following example enters crypto ca trustpoint configuration mode for trustpoint, central, and designates it an SSL trustpoint:

```
hostname(config)# crypto ca trustpoint central
hostname(config-ca-trustpoint)# validation-policy ssl
hostname(config-ca-trustpoint)#
```

The following example enters crypto ca trustpoint configuration mode for trustpoint, checkin1,and sets it to accept certificates that are subordinate to the specified trustpoint.

```
hostname(config)# crypto ca trustpoint checkin1
hostname(config-ca-trustpoint)# validation-policy subordinates-only
hostname(config-ca-trustpoint)#
```

Related Commands

Command	Description
crypto ca trustpoint	Enters trustpoint configuration mode.
id-usage	Specifies how the enrolled identity of a trustpoint can be used
ssl trust-point	Specifies the certificate trustpoint that represents the SSL certificate for an interface.

validation-usage

To specify the usage types for which validation with this trustpoint is allowed, use the **validation-usage** command in crypto ca trustpoint configuration mode. To not specify the usage types, use the **no** form of the command.

validation-usage ipsec-client | ssl-client | ssl-server

no validation-usage ipsec-client | ssl-client | ssl-server

Syntax Description

ipsec-client	Indicates that IPsec client connections can be validated using this trustpoint.
ssl-client	Indicates that SSL client connections can be validated using this trustpoint.
ssl-server	Indicates that SSL server certificates can be validated using this trustpoint.

Defaults

ipsec-client, ssl-client

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Crypto ca trustpoint configuration	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced to replace the client-types command.

Usage Guidelines

When there are multiple trustpoints associated with the same CA certificate, only one of the trustpoints can be configured for a specific client type. However, one of the trustpoints can be configured for one client type and the other trustpoint with another client type.

If there is a trustpoint associated with the same CA certificate that is already configured with a client type, the new trustpoint is not allowed to be configured with the same client-type setting. The **no** form of the command clears the setting so that a trustpoint cannot be used for any client validation.

Remote access VPNs can use Secure Sockets Layer (SSL) VPN, IP Security (IPsec), or both, depending on deployment requirements, to permit access to any network application or resource.

Related Commands

Command	Description
crypto ca trustpoint	Enters the crypto ca trustpoint configuration mode for the specified trustpoint.

vdi

To provide secure remote access for Citrix Receiver applications running on mobile devices to XenApp and XenDesktop VDI servers through the ASA, use the **vdi** command.

vdi type citrix url *url* **domain** *domain* **username** *username* **password** *password*

Syntax Description

domain *domain*	Domain for logging into the virtualization infrastructure server. This value can be a clientless macro.
password *password*	Password for logging into the virtualization infrastructure server. This value can be a clientless macro.
type	Type of VDI. For a Citrix Receiver type, this value must be *citrix*.
url *url*	Full URL of the XenApp or XenDesktop server including http or https, hostname, and port number, as well as the path to the XML service.
username *username*	Username for logging into the virtualization infrastructure server. This value can be a clientless macro.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Webvpn configuration	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

In a VDI model, administrators publish desktops pre-loaded with enterprise applications, and end users remotely access these desktops. These virtualized resources appear just as any other resources, such as email, so that users do not need to go through a Citrix Access Gateway to access them. Users log onto the ASA using Citrix Receiver mobile client, and the ASA connects to a pre-defined Citrix XenApp or XenDesktop Server. The administrator must configure the Citrix server's address and logon credentials under Group Policy so that when users connect to their Citrix Virtualized resource, they enter the ASA's SSL VPN IP address and credentials instead of pointing to the Citrix Server's address and credentials. When the ASA has verified the credentials, the receiver client starts to retrieve entitled applications through the ASA.

Supported Mobile Devices

- iPad—Citrix Receiver version 4.x or later
- iPhone/iTouch—Citrix Receiver version 4.x or later
- Android 2.x phone—Citrix Receiver version 2.x or later

- Android 3.x tablet—Citrix Receiver version 2.x or later
- Android 4.0 phone—Citrix Receiver version 2.x or later

Examples

If both username and group policy are configured, username settings take precedence over group policy.

```
configure terminal
    group-policy DfltGrpPolicy attributes
        webvpn
            vdi type <citrix> url <url> domain <domain> username <username> password
            <password>
configure terminal
    username <username> attributes
        webvpn
            vdi type <citrix> url <url> domain <domain> username <username> password
            <password>]
```

Related Commands

Command	Description
debug webvpn citrix	Provides insight into the process of launching Citrix-based applications and desktops.

verify

To verify the checksum of a file, use the **verify** command in privileged EXEC mode.

verify *path*

verify [**/md5** *path*] [*md5-value*]

Syntax Description

/md5	(Optional) Calculates and displays the MD5 value for the specified software image. Compare this value with the value available on Cisco.com for this image.
md5-value	(Optional) The known MD5 value for the specified image. When an MD5 value is specified in the command, the system will calculate the MD5 value for the specified image and display a message verifying that the MD5 values match or that there is a mismatch.
path	• **disk0:/**[*path*/]*filename* This option is only available for the ASA 5500 series, and indicates the internal Flash memory. You can also use **flash** instead of **disk0**; they are aliased. • **disk1:/**[*path*/]*filename* This option is only available for the ASA 5500 series, and indicates the external Flash memory card. • **flash:/**[*path*/]*filename* This option indicates the internal Flash card. For the ASA 5500 series, **flash** is an alias for **disk0:**. • **ftp://**[*user*[**:***password*]@]*server*[:*port*]**/**[*path*/]*filename*[**;type=***xx*] The **type** can be one of the following keywords: – **ap**—ASCII passive mode – **an**—ASCII normal mode – **ip**—(Default) Binary passive mode – **in**—Binary normal mode • **http**[**s**]**://**[*user*[**:***password*]@]*server*[:*port*]**/**[*path*/]*filename* • **tftp://**[*user*[**:***password*]@]*server*[:*port*]**/**[*path*/]*filename*[**;int=***interface_name*] Specify the interface name if you want to override the route to the server address. The pathname cannot contain spaces. If a pathname has spaces, set the path in the **tftp-server** command instead of in the **verify** command.

Defaults

The current flash device is the default file system.

Note When you specify the **/md5** option, you can use a network file, such as ftp, http and tftp as the source. The **verify** command without the **/md5** option only lets you verify local images in Flash.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

Use the **verify** command to verify the checksum of a file before using it.

Each software image that is distributed on disk uses a single checksum for the entire image. This checksum is displayed only when the image is copied into Flash memory; it is not displayed when the image file is copied from one disk to another.

Before loading or duplicating a new image, record the checksum and MD5 information for the image so that you can verify the checksum when you copy the image into Flash memory or onto a server. A variety of image information is available on Cisco.com.

To display the contents of Flash memory, use the **show flash** command. The Flash contents listing does not include the checksum of individual files. To recompute and verify the image checksum after the image has been copied into Flash memory, use the **verify** command. Note, however, that the **verify** command only performs a check on the integrity of the file after it has been saved in the file system. It is possible for a corrupt image to be transferred to the ASA and saved in the file system without detection. If a corrupt image is transferred successfully to the ASA, the software will be unable to tell that the image is corrupted and the file will verify successfully.

To use the message-digest5 (MD5) hash algorithm to ensure file validation, use the **verify** command with the **/md5** option. MD5 is an algorithm (defined in RFC 1321) that is used to verify data integrity through the creation of a unique 128-bit message digest. The **/md5** option of the **verify** command allows you to check the integrity of the security appliance software image by comparing its MD5 checksum value against a known MD5 checksum value for the image. MD5 values are now made available on Cisco.com for all security appliance software images for comparison against local system image values.

To perform the MD5 integrity check, issue the **verify** command using the **/md5** keyword. For example, issuing the **verify /md5 flash:cdisk.bin** command will calculate and display the MD5 value for the software image. Compare this value with the value available on Cisco.com for this image.

Alternatively, you can get the MD5 value from Cisco.com first, then specify this value in the command syntax. For example, issuing the **verify /md5 flash:cdisk.bin 8b5f3062c4cacdbae72571440e962233** command will display a message verifying that the MD5 values match or that there is a mismatch. A mismatch in MD5 values means that either the image is corrupt or the wrong MD5 value was entered.

Examples

The following example shows the **verify** command used on an image file called cdisk.bin. Some of the text was removed for clarity:

```
hostname# verify cdisk.bin
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!Done!
Embedded Hash MD5: af5a155f3d5c128a271282c33277069b
Computed Hash MD5: af5a155f3d5c128a271282c33277069b
CCO Hash      MD5: b569fff8bbf8087f355aaf22ef46b782
Signature Verified
Verified disk0:/cdisk.bin
hostname#
```

Related Commands

Command	Description
copy	Copies files.
dir	Lists the files in the system.

verify-header

To allow only known IPv6 extension headers and enforces the order of IPv6 extension headers, use the **verify-header** command in parameters configuration mode. You can access the parameters configuration mode by first entering the **policy-map type inspect ipv6** command. To disable these parameters, use the **no** form of this command.

verify-header {**order** | **type**}

no verify-header {**order** | **type**}

Syntax Description

order	Enforces the order of IPv6 extension headers as defined in the RFC 2460 specification.
type	Allows only known IPv6 extension headers.

Command Default

Both order and type are enabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Parameters configuration	•	•	•	•	—

Command History

Release	Modification
8.2(1)	We introduced this command.

Usage Guidelines

These parameters are enabled by default. To disable them, enter the no keyword.

Examples

The following example disables the order and type parameters for an IPv6 inspection policy map:

```
hostname(config)# policy-map type inspect ipv6 ipv6-map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# no verify-header order
hostname(config-pmap-p)# no verify-header type
```

Related Commands

Command	Description
inspect ipv6	Enables IPv6 inspection.
parameters	Enters parameters configuration mode for an inspection policy map.

Command	Description
policy-map type inspect ipv6	Creates an IPv6 inspection policy map.

version

To specify the version of RIP used globally by the ASA, use the **version** command in router configuration mode. To restore the defaults, use the **no** form of this command.

version {**1** | **2**}

no version

Syntax Description

1	Specifies RIP Version 1.
2	Specifies RIP Version 2.

Defaults

The ASA accepts Version 1 and Version 2 packets but sends only Version 1 packets.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Router configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

You can override the global setting on a per-interface basis by entering the **rip send version** and **rip receive version** commands on an interface.

If you specify RIP version 2, you can enable neighbor authentication and use MD5-based encryption to authenticate the RIP updates.

Examples

The following example configures the ASA to send and receive RIP Version 2 packets on all interfaces:

```
hostname(config)# router rip
hostname(config-router)# network 10.0.0.0
hostname(config-router)# version 2
```

Related Commands

Command	Description
rip send version	Specifies the RIP version to use when sending update out of a specific interface.
rip receive version	Specifies the RIP version to accept when receiving updates on a specific interface.
router rip	Enables the RIP routing process and enter router configuration mode for that process.

virtual http

To configure a virtual HTTP server, use the **virtual http** command in global configuration mode. To disable the virtual server, use the **no** form of this command.

virtual http *ip_address* [**warning**]

no virtual http *ip_address* [**warning**]

Syntax Description

ip_address	Sets the IP address for the virtual HTTP server on the ASA. Make sure this address is an unused address that is routed to the ASA.
warning	(Optional) Notifies users that the HTTP connection needs to be redirected to the ASA. This keyword applies only for text-based browsers, where the redirect cannot happen automatically.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was deprecated because the inline basic HTTP authentication method used in prior releases was replaced by the redirection method; this command was no longer needed.
7.2(2)	This command was revived because you can now choose between using basic HTTP authentication (the default) or using HTTP redirection using the **aaa authentication listener** command. The redirection method does not require an extra command for cascading HTTP authentications.

Usage Guidelines

When you use HTTP authentication on the ASA (see the **aaa authentication match** or the **aaa authentication include** command), the ASA uses basic HTTP authentication by default. You can change the authentication method so that the ASA redirects HTTP connections to web pages generated by the ASA itself using the **aaa authentication listener** command with the **redirect** keyword.

However, if you continue to use basic HTTP authentication, then you might need the **virtual http** command when you have cascading HTTP authentications.

If the destination HTTP server requires authentication in addition to the ASA, then the **virtual http** command lets you authenticate separately with the ASA (via a AAA server) and with the HTTP server. Without virtual HTTP, the same username and password you used to authenticate with the ASA is sent

to the HTTP server; you are not prompted separately for the HTTP server username and password. Assuming the username and password is not the same for the AAA and HTTP servers, then the HTTP authentication fails.

This command redirects all HTTP connections that require AAA authentication to the virtual HTTP server on the ASA. The ASA prompts for the AAA server username and password. After the AAA server authenticates the user, the ASA redirects the HTTP connection back to the original server, but it does not include the AAA server username and password. Because the username and password are not included in the HTTP packet, the HTTP server prompts the user separately for the HTTP server username and password.

For inbound users (from lower security to higher security), you must also include the virtual HTTP address as a destination interface in the access list applied to the source interface. Moreover, you must add a **static** command for the virtual HTTP IP address, even if NAT is not required (using the **no nat-control** command). An identity NAT command is typically used (where you translate the address to itself).

For outbound users, there is an explicit permit for traffic, but if you apply an access list to an inside interface, be sure to allow access to the virtual HTTP address. A **static** statement is not required.

Note Do not set the **timeout uauth** command duration to 0 seconds when using the **virtual http** command, because this setting prevents HTTP connections to the real web server.

Examples

The following example shows how to enable virtual HTTP along with AAA authentication:

```
hostname(config)# virtual http 209.165.202.129
hostname(config)# access-list ACL-IN extended permit tcp any host 209.165.200.225 eq http
hostname(config)# access-list ACL-IN remark This is the HTTP server on the inside
hostname(config)# access-list ACL-IN extended permit tcp any host 209.165.202.129 eq http
hostname(config)# access-list ACL-IN remark This is the virtual HTTP address
hostname(config)# access-group ACL-IN in interface outside
hostname(config)# static (inside, outside) 209.165.202.129 209.165.202.129 netmask
255.255.255.255
hostname(config)# access-list AUTH extended permit tcp any host 209.165.200.225 eq http
hostname(config)# access-list AUTH remark This is the HTTP server on the inside
hostname(config)# access-list AUTH extended permit tcp any host 209.165.202.129 eq http
hostname(config)# access-list AUTH remark This is the virtual HTTP address
hostname(config)# aaa authentication match AUTH outside tacacs+
```

Related Commands

Command	Description
aaa authentication listener http	Sets the method by which the ASA authentica
clear configure virtual	Removes **virtual** command statements from the configuration.
show running-config virtual	Displays the IP address of the ASA virtual server.
sysopt uauth allow-http-cache	When you enable the **virtual http** command, this command lets you use the username and password in the browser cache to reconnect to the virtual server.
virtual telnet	Provides a virtual Telnet server on the ASA to let users authenticate with the ASA before initiating other types of connections that require authentication.

virtual telnet

To configure a virtual Telnet server on the ASA, use the **virtual telnet** command in global configuration mode. You might need to authenticate users with the virtual Telnet server if you require authentication for other types of traffic for which the ASA does not supply an authentication prompt. To disable the server, use the **no** form of this command.

virtual telnet *ip_address*

no virtual telnet *ip_address*

Syntax Description

ip_address	Sets the IP address for the virtual Telnet server on the ASA. Make sure this address is an unused address that is routed to the ASA.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Although you can configure network access authentication for any protocol or service (see the **aaa authentication match** or **aaa authentication include** command), you can authenticate directly with HTTP, Telnet, or FTP only. A user must first authenticate with one of these services before other traffic that requires authentication is allowed through. If you do not want to allow HTTP, Telnet, or FTP through the ASA, but want to authenticate other types of traffic, you can configure virtual Telnet; the user Telnets to a given IP address configured on the ASA, and the ASA provides a Telnet prompt.

You must configure authentication for Telnet access to the virtual Telnet address as well as the other services you want to authenticate using the **authentication match** or **aaa authentication include** command.

When an unauthenticated user connects to the virtual Telnet IP address, the user is challenged for a username and password, and then authenticated by the AAA server. Once authenticated, the user sees the message “Authentication Successful.” Then, the user can successfully access other services that require authentication.

For inbound users (from lower security to higher security), you must also include the virtual Telnet address as a destination interface in the access list applied to the source interface. Moreover, you must add a **static** command for the virtual Telnet IP address, even if NAT is not required (using the **no nat-control** command). An identity NAT command is typically used (where you translate the address to itself).

For outbound users, there is an explicit permit for traffic, but if you apply an access list to an inside interface, be sure to allow access to the virtual Telnet address. A **static** statement is not required.

To logout from the ASA, reconnect to the virtual Telnet IP address; you are prompted to log out.

Examples

This example shows how to enable virtual Telnet along with AAA authentication for other services:

```
hostname(config)# virtual telnet 209.165.202.129
hostname(config)# access-list ACL-IN extended permit tcp any host 209.165.200.225 eq smtp
hostname(config)# access-list ACL-IN remark This is the SMTP server on the inside
hostname(config)# access-list ACL-IN extended permit tcp any host 209.165.202.129 eq
telnet
hostname(config)# access-list ACL-IN remark This is the virtual Telnet address
hostname(config)# access-group ACL-IN in interface outside
hostname(config)# static (inside, outside) 209.165.202.129 209.165.202.129 netmask
255.255.255.255
hostname(config)# access-list AUTH extended permit tcp any host 209.165.200.225 eq smtp
hostname(config)# access-list AUTH remark This is the SMTP server on the inside
hostname(config)# access-list AUTH extended permit tcp any host 209.165.202.129 eq telnet
hostname(config)# access-list AUTH remark This is the virtual Telnet address
hostname(config)# aaa authentication match AUTH outside tacacs+
```

Related Commands

Command	Description
clear configure virtual	Removes **virtual** command statements from the configuration.
show running-config virtual	Displays the IP address of the ASA virtual server.
virtual http	When you use HTTP authentication on the ASA, and the HTTP server also requires authentication, this command allows you to authenticate separately with the ASA and with the HTTP server. Without virtual HTTP, the same username and password you used to authenticate with the ASA is sent to the HTTP server; you are not prompted separately for the HTTP server username and password.

vlan

To assign a VLAN ID to a subinterface, use the **vlan** command in interface configuration mode. To remove a VLAN ID, use the **no** form of this command. Subinterfaces require a VLAN ID to pass traffic. VLAN subinterfaces let you configure multiple logical interfaces on a single physical interface. VLANs let you keep traffic separate on a given physical interface, for example, for multiple security contexts.

vlan *id*

no vlan

Syntax Description

id	Specifies an integer between 1 and 4094. Some VLAN IDs might be reserved on connected switches, so check the switch documentation for more information.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Interface configuration	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was moved from a keyword of the **interface** command to an interface configuration mode command.

Usage Guidelines

You can only assign a single VLAN to a subinterface, and not to the physical interface. Each subinterface must have a VLAN ID before it can pass traffic. To change a VLAN ID, you do not need to remove the old VLAN ID with the **no** option; you can enter the **vlan** command with a different VLAN ID, and the ASA changes the old ID.

You need to enable the physical interface with the **no shutdown** command to let subinterfaces be enabled. If you enable subinterfaces, you typically do not also want the physical interface to pass traffic, because the physical interface passes untagged packets. Therefore, you cannot prevent traffic from passing through the physical interface by bringing down the interface. Instead, ensure that the physical interface does not pass traffic by leaving out the **nameif** command. If you want to let the physical interface pass untagged packets, you can configure the **nameif** command as usual.

The maximum number of subinterfaces varies depending on your platform. See the CLI configuration guide for the maximum subinterfaces per platform.

Examples

The following example assigns VLAN 101 to a subinterface:

```
hostname(config)# interface gigabitethernet0/0.1
hostname(config-subif)# vlan 101
hostname(config-subif)# nameif dmz1
hostname(config-subif)# security-level 50
hostname(config-subif)# ip address 10.1.2.1 255.255.255.0
hostname(config-subif)# no shutdown
```

The following example changes the VLAN to 102:

```
hostname(config)# show running-config interface gigabitethernet0/0.1
interface GigabitEthernet0/0.1
   vlan 101
   nameif dmz1
   security-level 50
   ip address 10.1.2.1 255.255.255.0

hostname(config)# interface gigabitethernet0/0.1
hostname(config-interface)# vlan 102

hostname(config)# show running-config interface gigabitethernet0/0.1
interface GigabitEthernet0/0.1
   vlan 102
   nameif dmz1
   security-level 50
   ip address 10.1.2.1 255.255.255.0
```

Related Commands

Command	Description
allocate-interface	Assigns interfaces and subinterfaces to a security context.
interface	Configures an interface and enters interface configuration mode.
show running-config interface	Shows the current configuration of the interface.

vlan (group-policy)

To assign a VLAN to a group policy, use the **vlan** command in group-policy configuration mode. To remove the VLAN from the configuration of the group policy and replace it with the VLAN setting of the default group policy, use the **no** form of this command.

[**no**] **vlan** {*vlan_id* |**none**}

Syntax Description

vlan_id	Number of the VLAN, in decimal format, to assign to remote access VPN sessions that use this group policy. The VLAN must be configured on this ASA, using the **vlan** command in interface configuration mode.
none	Disables the assignment of a VLAN to the remote access VPN sessions that match this group policy. The group policy does not inherit the vlan value from the default group policy.

Defaults

The default value is none.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy configuration	•	—	•	—	—

Command History

Release	Modification
8.0(2)	This command was introduced.

Usage Guidelines

This command specifies the egress VLAN interface for sessions assigned to this group policy. The ASA forwards all traffic on this group to that VLAN. You can assign a VLAN to each group policy to simplify access control. Use this command as an alternative to using ACLs to filter traffic on a session.

Examples

The following command assigns the VLAN 1 to the group policy:

```
hostname(config-group-policy)# vlan 1
hostname(config-group-policy)
```

The following command removes VLAN mapping from the group policy:

```
hostname(config-group-policy)# vlan none
hostname(config-group-policy)
```

Related Commands

Command	Description
show vlan	Shows the VLANs configured on the ASA.
vlan (interface configuration mode)	Assigns a VLAN ID to a subinterface.
show vpn-session_summary.db	Displays the number IPsec, Cisco AnyConnect, and NAC sessions, and the number of VLANs in use.
show vpn-session.db	Displays information about VPN sessions, including VLAN mapping and NAC results.

vpdn group

To create or edit a vpdn group and configure PPPoE client settings, use the **vpdn group** command in global configuration mode. To remove a group policy from the configuration, use the **no** form of this command.

vpdn group *group_name* {**localname** *username* | **request dialout pppoe** | **ppp authentication** {**chap** | **mschap** | **pap**}}

no vpdn group *group_name* {**localname** *name* | **request dialout pppoe** | **ppp authentication** {**chap** | **mschap** | **pap**}}

Note PPPoE is not supported when failover is configured on the ASA, or in multiple context or transparent mode. PPPoE is only supported in single, routed mode, without failover.

Syntax Description

vpdn group *group_name*	Specifies a name for the vpdn group
localname *username*	Links the user name to the vpdn group for authentication, and must match the name configured with the **vpdn username** command.
request dialout pppoe	Specifies to allow dialout PPPoE requests.
**ppp authentication {chap | mschap | pap}}	Specifies the Point-to-Point Protocol (PPP) authentication protocol. The Windows client dial-up networking settings lets you specify what authentication protocol to use (PAP, CHAP, or MS-CHAP). Whatever you specify on the client must match the setting you use on the security appliance. Password Authentication Protocol (PAP) lets PPP peers authenticate each other. PAP passes the host name or username in clear text. Challenge Handshake Authentication Protocol (CHAP) lets PPP peers prevent unauthorized access through interaction with an access server. MS-CHAP is a Microsoft derivation of CHAP. PIX Firewall supports MS-CHAP Version 1 only (not Version 2.0). If an authentication protocol is not specified on the host, do not specify the **ppp authentication** option in your configuration.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•		—

Command History

Release	Modification
7.2.1	This command was introduced.

Usage Guidelines

Virtual Private Dial-up Networking (VPDN) is used to provide long distance, point-to-point connections between remote dial-in users and a private network. VDPN on the security appliance uses the Layer 2 tunnelling technology PPPoE to establish dial-up networking connections from the remote user to the private network across a public network.

PPPoE is the Point-to-Point Protocol (PPP) over Ethernet. PPP is designed to work with network layer protocols such as IP, IPX, and ARA. PPP also has CHAP and PAP as built-in security mechanisms.

The **show vpdn session pppoe** command displays session information for PPPOE connections. The **clear configure vpdn group** command removes all **vpdn group** commands from the configuration and stops all the active L2TP and PPPoE tunnels. The **clear configure vpdn username** command removes all the **vpdn username** commands from the configuration.

Because PPPoE encapsulates PPP, PPPoE relies on PPP to perform authentication and ECP and CCP functions for client sessions operating within the VPN tunnel. Additionally, PPPoE is not supported in conjunction with DHCP because PPP assigns the IP address for PPPoE.

Note Unless the VPDN group for PPPoE is configured, PPPoE cannot establish a connection.

To define a VPDN group to be used for PPPoE, use the **vpdn group** *group_name* **request dialout pppoe** command. Then use the **pppoe client vpdn group** command from interface configuration mode to associate a VPDN group with a PPPoE client on a particular interface.

If your ISP requires authentication, use the **vpdn group** *group_name* **ppp authentication** {**chap** | **mschap** | **pap**} command to select the authentication protocol used by your ISP.

Use the **vpdn group** *group_name* **localname** *username* command to associate the username assigned by your ISP with the VPDN group.

Use the **vpdn username** *username* password *password* command to create a username and password pair for the PPPoE connection. The username must be a username that is already associated with the VPDN group specified for PPPoE.

Note If your ISP is using CHAP or MS-CHAP, the username may be called the remote system name and the password may be called the CHAP secret.

The PPPoE client functionality is turned off by default, so after VPDN configuration, enable PPPoE with the **ip address** *if_name* **pppoe** [**setroute**] command. The **setroute** option causes a default route to be created if no default route exists.

As soon as PPPoE is configured, the security appliance attempts to find a PPPoE access concentrator with which to communicate. When a PPPoE connection is terminated, either normally or abnormally, the security appliance attempts to find a new access concentrator with which to communicate.

The following **ip address** commands should not be used after a PPPoE session is initiated because they will terminate the PPPoE session:

- **ip address outside pppoe**, because it attempts to initiate a new PPPoE session.
- **ip address outside dhcp**, because it disables the interface until the interface gets its DHCP configuration.
- **ip address outside** *address netmask*, because it brings up the interface as a normally initialized interface.

Examples

The following example creates a vdpn group *telecommuters* and configures the PPPoE client:

```
F1(config)# vpdn group telecommuters request dialout pppoe
F1(config)# vpdn group telecommuters localname user1
F1(config)# vpdn group telecommuters ppp authentication pap
F1(config)# vpdn username user1 password test1
F1(config)# interface GigabitEthernet 0/1
F1(config-subif)# ip address pppoe setroute
```

Related Commands

Command	Description
clear configure vpdn group	Removes all vpdn group commands from the configurations.
clear configure vpdn username	Removes all vpdn username commands from the configuration.
show vpdn group *group_name*	Displays the vpdn group configuration.
vpdn username	Creates a username and password pair for the PPPoE connection.

vpdn username

To create a username and password pair for PPPoE connections, use the **vpdn username** command in global configuration mode.

vpdn username *username* **password** *password* [**store-local**]

no vpdn username *username* **password** *password* [**store-local**]

Note PPPoE is not supported when failover is configured on the ASA, or in multiple context or transparent mode. PPPoE is only supported in single, routed mode, without failover.

Syntax Description

username	Specifies the username.
password	Specifies the password.
store-local	Stores the username and password in a special location of NVRAM on the security appliance. If an Auto Update Server sends a clear config command to the security appliance and the connection is then interrupted, the security appliance can read the username and password from NVRAM and re-authenticate to the Access Concentrator.

Defaults

No default behavior or values. See Usage Guidelines.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•		—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

The vpdn username must be a username that is already associated with the VPDN group specified with the **vpdn group** *group_name* **localname** *username* command.

The **clear configure vpdn username** command removes all the **vpdn username** commands from the configuration.

Examples

The following example creates the vpdn username *bob_smith* with the password *telecommuter*9/8:

```
F1(config)# vpdn username bob_smith password telecommuter9/8
```

Related Commands

Command	Description
clear configure vpdn group	Removes all vpdn group commands from the configurations.
clear configure vpdn username	Removes all vpdn username commands from the configuration.
show vpdn group	Displays the vpdn group configuration.
vpdn group	Create a vpdn group and configures PPPoE client settings,

vpn-access-hours

To associate a group policy with a configured time-range policy, use the **vpn-access-hours** command in group-policy configuration mode or username configuration mode. To remove the attribute from the running configuration, use the **no** form of this command. This option allows inheritance of a time-range value from another group policy. To prevent inheriting a value, use the **vpn-access-hours none** command.

vpn-access hours value {*time-range*} | **none**

no vpn-access hours

Syntax Description

none	Sets VPN access hours to a null value, thereby allowing no time-range policy. Prevents inheriting a value from a default or specified group policy.
time-range	Specifies the name of a configured time-range policy.

Defaults

Unrestricted.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Group-policy configuration	•	—	•	—	—
Username configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to associate the group policy named FirstGroup with a time-range policy called 824:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# vpn-access-hours 824
```

Related Commands

Command	Description
time-range	Sets days of the week and hours of the day for access to the network, including start and end dates.

vpn-addr-assign

To specify a method for assigning IPv4 addresses to remote access clients, use the **vpn-addr-assign** command in global configuration mode. To remove the attribute from the configuration, use the **no** version of this command. To remove all configured VPN address assignment methods from the ASA, user the **no** version of this command. without arguments.

vpn-addr-assign {**aaa | dhcp | local** [**reuse-delay** *delay*]}

no vpn-addr-assign {**aaa | dhcp | local** [**reuse-delay** *delay*]}

Syntax Description

aaa	Assigns IPv4 addresses from an external or internal (LOCAL) AAA authentication server.
dhcp	Obtains IP addresses via DHCP.
local	Assigns IP addresses from an IP adress pool configured on the ASA and associates them with a tunnel group.
reuse-delay *delay*	The delay before a released IP address can be reused. The range is 0 to 480 minutes. The default is 0 (disabled).

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•		—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.0.3	The **reuse-delay** option was introduced.

Usage Guidelines

If you choose DHCP, you should also use the **dhcp-network-scope** command to define the range of IP addresses that the DHCP server can use. You must use the **dhcp-server** command to indicate the IP addresses that the DHCP server uses.

If you choose local, you must also use the **ip-local-pool** command to define the range of IP addresses to use. You then use the **vpn-framed-ip-address** and **vpn-framed-netmask** commands to assign IP addresses and netmasks to individual users.

With the local pool, you can use the **reuse-delay** *delay* option to adjust the delay before a released IP address can be reused. Increasing the delay prevents problems firewalls may experience when an IP address is returned to the pool and reassigned quickly.

If you choose AAA, you obtain IP addresses from either a previously configured RADIUS server.

Examples

The following example shows how to configure DHCP as the address assignment method:

```
hostname(config)# vpn-addr-assign dhcp
```

Related Commands

Command	Description
dhcp-network-scope	Specifies the range of IP addresses the ASA DHCP server should use to assign addresses to users of a group policy.
ip-local-pool	Creates a local IP address pool.
ipv6-addr-assign	Specifies a method for assigning IPv6 addresses to remote access clients.
vpn-framed-ip-address	Specifies the IP address to assign to a particular user.
vpn-framed-ip-netmask	Specifies the netmask to assign to a particular user.

vpn-filter

To specify the name of the ACL to use for VPN connections, use the **vpn-filter** command in group policy or username mode. To remove the ACL, including a null value created by issuing the **vpn-filter none** command, use the **no** form of this command. The **no** option allows inheritance of a value from another group policy. To prevent inheriting values, use the **vpn-filter none** command.

You configure ACLs to permit or deny various types of traffic for this user or group policy. You then use the **vpn-filter** command to apply those ACLs.

vpn-filter {**value** *ACL name* | **none**}

no vpn-filter

Syntax Description

none	Indicates that there is no access list. Sets a null value, thereby disallowing an access list. Prevents inheriting an access list from another group policy.
value *ACL name*	Provides the name of the previously configured access list.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy	•	—	•	—	—
Username	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Command can now be used for IPv4 and IPv6 ACLs.
9.1.(4)	Command must now be used for IPv4 and IPv6 ACLs. If the deprecated command ipv6-vpn-filter is mistakenly used to specify IPv6 ACLs the connection will be terminated.

Usage Guidelines

Clientless SSL VPN does not use the ACL defined in the **vpn-filter** command.

By design, the vpn-filter feature allows for traffic to be filtered in inbound direction only. The outbound rule is automatically compiled. When creating an icmp access-list, do not specify icmp type in the access-list formatting if you want directional filters.

Examples

The following example shows how to set a filter that invokes an access list named acl_vpn for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# vpn-filter value acl_vpn
```

Related Commands

Command	Description
access-list	Creates an access list, or uses a downloadable access list.
ipv6-vpn-filter	Deprecated command which was used previously to specify IPv6 ACLs.

vpn-framed-ip-address

To specify the IPv4 address to assign to an individual user, use the **vpn-framed-ip-address** command in username mode. To remove the IP address, use the **no** form of this command.

vpn-framed-ip-address {*ip_address*} {*subnet_mask*}

no vpn-framed-ip-address

Syntax Description

ip_address	Provides the IP address for this user.
subnet_mask	Specifies the subnetwork mask.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Username	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to set an IP address of 10.92.166.7 for a user named anyuser:

```
hostname(config)# username anyuser attributes
hostname(config-username)# vpn-framed-ip-address 10.92.166.7 255.255.255.254
```

vpn-framed-ipv6-address

Use the **vpn-framed-ipv6-address** command in username mode to assign a dedicated IPv6 address to a user. To remove the IP address, use the **no** form of this command.

vpn-framed-ipv6-address *ip_address/subnet_mask*

no vpn-framed-ipv6-address *ip_address/subnet_mask*

Syntax Description

ip_address	Provides the IP address for this user.
subnet_mask	Specifies the subnetwork mask.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Username	•	—	•	—	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Examples

The following example shows how to set an IP address and netmask of 2001::3000:1000:2000:1/64 for a user named *anyuser*. This address indicates a prefix value of 2001:0000:0000:0000 and an interface ID of 3000:1000:2000:1.

```
hostname(config)# username anyuser attributes
hostname(config-username)# vpn-framed-ipv6-address 2001::3000:1000:2000:1/64
hostname(config-username)
```

Related Commands

Command	Description
vpn-framed-ip-address	Specifies an IPv4 address to assign to an individual user.

vpn-group-policy

To have a user inherit attributes from a configured group policy, use the **vpn-group-policy** command in username configuration mode. To remove a group policy from a user configuration, use the **no** version of this command. Using this command lets users inherit attributes that you have not configured at the username level.

vpn-group-policy {*group-policy name*}

no vpn-group-policy {*group-policy name*}

Syntax Description

group-policy name	Provides the name of the group policy.

Defaults

By default, VPN users have no group policy association.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Username configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You can override the value of an attribute in a group policy for a particular user by configuring it in username mode, if that attribute is available in username mode.

Examples

The following example shows how to configure a user named anyuser to use attributes from the group policy named FirstGroup:

```
hostname(config)# username anyuser attributes
hostname(config-username)# vpn-group-policy FirstGroup
```

Related Commands

Command	Description
group-policy	Adds a group policy to the ASA database.
group-policy attributes	Enters group-policy attributes mode, which lets you configure AVPs for a group policy.

Command	Description
username	Adds a user to the ASA database.
username attributes	Enters username attributes mode, which lets you configure AVPs for specific users.

vpn-idle-timeout

To configure a user timeout period use the **vpn-idle-timeout** command in group-policy configuration mode or in username configuration mode. If there is no communication activity on the connection in this period, the ASA terminates the connection. You can optionally extend the timeout alert-interval from the default one minute.

To remove the attribute from the running configuration, use the **no** form of this command. This option allows inheritance of a time-out value from another group policy. To prevent inheriting a value, use the **vpn-idle-timeout none** command.

vpn-idle-timeout {*minutes* | **none**} [**alert-interval** *minutes*]

no vpn-idle-timeout

no vpn-idle-timeout alert-interval

Syntax Description

minutes	Specifies the number of minutes in the timeout period, and the number of minutes before the time-out alert. Use an integer between 1 and 35791394.
none	AnyConnect (SSL IPsec/IKEv2): Use the global WebVPN default-idle-timeout value (seconds) from the command: **hostname(config-webvpn)# default-idle-timeout** The range for this value in the WebVPN **default-idle-timeout** command is 60-86400 seconds; the default Global WebVPN Idle timeout in seconds -- default is 1800 seconds (30 min). **Note** A non-zero idle timeout value is required by ASA for all AnyConnect connections. For a WebVPN user, the **default-idle-timeout** value is enforced only if vpn-idle-timeout none is set in the group policy/username attribute. Site-to-Site (IKEv1, IKEv2) and IKEv1 remote-access: Disable timeout and allow for an unlimited idle period.

Defaults

30 minutes.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy	•	—	•	—	—
Username	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The AnyConnect client supports session resumption for SSL and IKEv2 connection. With this capability, end user devices can go into sleep mode, lose their WiFi, or any of the like and resume the same connection upon return.

Examples

The following example shows how to set a VPN idle timeout of 15 minutes for the group policy named "FirstGroup":

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# vpn-idle-timeout 30
```

The security appliance uses the default-idle-timeout value if no idle timeout is defined for a user, if the vpn-idle-timeout value is 0, or if the value does not fall into the valid range.

Related Commands

default-idle-timeout	Specifies the global WebVPN default idle timeout.
group-policy	Creates or edits a group policy.
vpn-session-timeout	Configures the maximum amount of time allowed for VPN connections. At the end of this period of time, the ASA terminates the connection.

vpn load-balancing

To enter vpn load-balancing mode, in which you can configure VPN load balancing and related functions, use the **vpn load-balancing** command in global configuration mode.

vpn load-balancing

Note To use VPN load balancing, you must have an ASA 5510 with a Plus license or an ASA 5520 or higher. VPN load balancing also requires an active 3DES/AES license. The security appliance checks for the existence of this crypto license before enabling load balancing. If it does not detect an active 3DES or AES license, the security appliance prevents the enabling of load balancing and also prevents internal configuration of 3DES by the load balancing system unless the license permits this usage.

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•		—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.0(2)	Added support for ASA 5510 with a Plus license and models above 5520.

Usage Guidelines

A load-balancing cluster can include security appliance models 5510 (with a Plus license), or ASA 5520 and above. You can also include VPN 3000 Series Concentrators in the cluster. While mixed configurations are possible, administration is generally simpler if the cluster is homogeneous.

Use the **vpn load-balancing** command to enter vpn load-balancing mode. The following commands are available in vpn load-balancing mode:

- cluster encryption
- cluster ip address
- cluster key
- cluster port
- interface

- nat
- participate
- priority
- redirect-fqdn

See the individual command descriptions for detailed information.

Examples

The following is an example of the **vpn load-balancing** command; note the change in the prompt:

```
hostname(config)# vpn load-balancing
hostname(config-load-balancing)#
```

The following is an example of a VPN load-balancing command sequence that includes an interface command that specifies the public interface of the cluster as “test” and the private interface of the cluster as “foo”:

```
hostname(config)# interface GigabitEthernet 0/1
hostname(config-if)# ip address 209.165.202.159 255.255.255.0
hostname(config)# nameif test
hostname(config)# interface GigabitEthernet 0/2
hostname(config-if)# ip address 209.165.201.30 255.255.255.0
hostname(config)# nameif foo
hostname(config)# vpn load-balancing
hostname(config-load-balancing)# nat 192.168.10.10
hostname(config-load-balancing)# priority 9
hostname(config-load-balancing)# interface lbpublic test
hostname(config-load-balancing)# interface lbprivate foo
hostname(config-load-balancing)# cluster ip address 209.165.202.224
hostname(config-load-balancing)# cluster key 123456789
hostname(config-load-balancing)# cluster encryption
hostname(config-load-balancing)# cluster port 9023
hostname(config-load-balancing)# participate
```

Related Commands

Command	Description
clear configure vpn load-balancing	Removes the load-balancing runtime configuration and disables load balancing.
show running-config vpn load-balancing	Displays the the current VPN load-balancing virtual cluster configuration.
show vpn load-balancing	Displays VPN load-balancing runtime statistics.

vpn-session-db

To specify the maximum number of VPN sessions or AnyConnect client VPN sessions, use the **vpn-session-db** command from global configuration mode. To remove the limit from the configuration, use the **no** form of the command:

vpn-sessiondb {**max-anyconnect-premium-or-essentials-limit** *number* | **max-other-vpn-limit** *number*}

Syntax Description

max-anyconnect-premium-or-essentials-limit *number*	Specifies the maximum number of AnyConnect sessions, from 1 to the maximum sessions allowed by the license.
max-other-vpn-limit *number*	Specifies the maximum number of VPN sessions other than AnyConnect client sessions, from 1 to the maximum sessions allowed by the license. This includes Cisco VPN client (IPsec IKEv1), Lan-to-Lan VPN, and clientless SSL VPN sessions.

Defaults

By default, the ASA does not limit the number of VPN sessions lower than the licensed maximum.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.4(1)	The following keywords were changed: • **max-anyconnect-premium-or-essentials-limit** replaced **max-session-limit** • **max-other-vpn-limit** replaced **max-webvpn-session-limit**
9.0(1)	Support for multiple context mode was added for max-other-vpn-limit and logoff.

Examples

The following example sets the maximum AnyConnect sessions to 200:

```
hostname(config)# vpn-sessiondb max-anyconnect-premium-or-essentials-limit 200
```

Related Commands

Command	Description
vpn-sessiondb logoff	Logs off all or specific types of IPsec VPN and WebVPN sessions.
vpn-sessiondb max-webvpn-session-limit	Sets a maximum number of WebVPN sessions.

vpn-sessiondb logoff

To log off all or selected VPN sessions, use the **vpn-sessiondb logoff** command in global configuration mode.

vpn-sessiondb logoff {**all** | **anyconnect** | **email-proxy** | **index** ***index_number*** | **ipaddress** *IPaddr* | **l2l** | **name** *username* | **protocol** *protocol-name* | **ra-ikev1-ipsec** | **tunnel-group** *groupname* | **vpn-lb** | **webvpn**} [**noconfirm**]

Syntax Description

all	Logs off all VPN sessions.
anyconnect	Logs of all AnyConnect VPN client sessions.
email-proxy	Logs off all e-mail proxy sessions.
index *index_number*	Logs off a single session by index number. Specify the index number for the session. You can view index numbers for each session with the **show vpn-sessiondb detail** command.
ipaddress *IPaddr*	Logs off sessions for the IP address hat you specify.
l2l	Logs off all LAN-to-LAN sessions.
name *username*	Logs off sessions for the username that you specify.

protocol *protocol-name*	Logs off sessions for protocols that you specify. The protocols include: **ikev1**—Sessions using the Internet Key Exchange version 1 (IKEv1) protocol. **ikev2**—Sessions using the Internet Key Exchange version 2 (IKEv2) protocol. **ipsec**—IPsec sessions using either IKEv1 or IKEv2. **ipseclan2lan**—IPsec Lan-to-Lan sessions. **ipseclan2lanovernatt**—IPsec Lan-to-Lan over NAT-T sessions. **ipsecovernatt**—IPsec over NAT-T sessions. **ipsecovertcp**—IPsec over TCP sessions. **ipsecoverudp**—IPsec over UDP sessions. **l2tpOverIpSec**—L2TP over IPsec sessions. **l2tpOverIpsecOverNatT**—L2TP over IPsec over NAT-T sessions. **webvpn**—Clientless SSL VPN sessions. **imap4s**—IMAP4 sessions. **pop3s**—POP3 sessions. **smtps**—SMTP sessions. **anyconnectParent**—AnyConnect client sessions, regardless of the protocol used for the session (terminates AnyConnect IPsec IKEv2 and SSL sessions). **ssltunnel**—SSL VPN sessions, including AnyConnect sessions using SSL and clientless SSL VPN sessions. **dtlstunnel**—AnyConnect client sessions with DTLS enabled.
ra-ikev1-ipsec	Logs off all IPsec IKEv1 remote-access sessions.
tunnel-group *groupname*	Logs off sessions for the tunnel group (connection profile) that you specify.
webvpn	Logs off all clientless SSL VPN sessions.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
8.4(1)	The following **protocol** keywords were changed or added: • **remote** was changed to **ra-ikev1-ipsec**. • **ike** was changed to **ikev1**. • **ikev2** was added. • **anyconnectParent** was added.
9.0(1)	Support for multiple context mode was added.

Examples

The following example shows how to log off all AnyConnect client sessions:

```
hostname# vpn-sessiondb logoff anyconnect
```

The next example shows how to log off all IPsec sessions:

```
hostname# vpn-sessiondb logoff protocol IPsec
```

vpn-session-timeout

To configure a maximum amount of time allowed for VPN connections, use the **vpn-session-timeout** command in group-policy configuration mode or in username configuration mode. At the end of this period of time, the ASA terminates the connection. You can optionally extend the timeout alert-interval from the default one minute.

To remove the attribute from the running configuration, use the **no** form of this command. This option allows inheritance of a time-out value from another group policy. To prevent inheriting a value, use the **vpn-session-timeout none** command.

vpn-session-timeout {*minutes* | **none**} [**alert-interval** *minutes*]

no vpn-session-timeout

no vpn-session-timeout alert-interval

Syntax Description

minutes	Specifies the number of minutes in the timeout period, and the number of minutes before the time-out alert. Use an integer between 1 and 35791394.
none	Permits an unlimited session timeout period. Sets session timeout with a null value, thereby disallowing a session timeout. Prevents inheriting a value from a default or specified group policy.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy configuration	•	—	•	—	—
Username configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples

The following example shows how to set a VPN session timeout of 180 minutes for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# vpn-session-timeout 180
```

Related Commands

group-policy	Creates or edits a group policy.
vpn-idle-timeout	Configures the user timeout period. If there is no communication activity on the connection in this period, the ASA terminates the connection.

vpn-simultaneous-logins

To configure the number of simultaneous logins permitted for a user, use the **vpn-simultaneous-logins** command in group-policy configuration mode or username configuration mode. To remove the attribute from the running configuration, use the **no** form of this command. This option allows inheritance of a value from another group policy. Enter 0 to disable login and prevent user access.

vpn-simultaneous-logins {*integer***}**

no vpn-simultaneous-logins

Syntax Description

integer	A number between 0 and 2147483647.

Defaults

The default is 3 simultaneous logins.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy configuration	•	—	•	—	—
Username configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Enter 0 to disable login and prevent user access.

Note While the maximum limit for the number of simultaneous logins is very large, allowing several simultaneous logins could compromise security and affect performance.

Stale AnyConnect, IPsec Client, or Clientless sessions (sessions that are terminated abnormally) might remain in the session database, even though a “new” session has been established with the same username.

If the value of vpn-simultaneous-logins is 1, and the same user logs in again after an abnormal termination, then the stale session is removed from the database and the new session is established. If, however, the existing session is still an active connection and the same user logs in again, perhaps from another PC, the first session is logged off and removed from the database, and the new session is established.

If the number of simultaneous logins is a value greater than 1, then, when you have reached that maximum number and try to log in again, the session with the longest idle time is logged off. If all current sessions have been idle an equally long time, then the oldest session is logged off. This action frees up a session and allows the new login.

Examples

The following example shows how to allow a maximum of 4 simultaneous logins for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# vpn-simultaneous-logins 4
```

vpn-tunnel-protocol

To configure a VPN tunnel type (IPsec with IKEv1 or IKEv2, L2TP over IPsec, SSL, or clientless SSL), use the **vpn-tunnel-protocol** command in group-policy configuration mode or username configuration mode. To remove the attribute from the running configuration, use the **no** form of this command.

vpn-tunnel-protocol {**ikev1 ikev2 l2tp-ipsec ssl-client ssl-clientless**}

no vpn-tunnel-protocol {**ikev1 ikev2 l2tp-ipsec ssl-client ssl-clientless**}

Syntax Description

ikev1	Negotiates an IPsec tunnel with IKEv1 between two peers (a remote access client or another secure gateway). Creates security associations that govern authentication, encryption, encapsulation, and key management.
ikev2	Negotiates an IPsec tunnel with IKEv2 between two peers (a remote access client or another secure gateway). Creates security associations that govern authentication, encryption, encapsulation, and key management.
l2tp-ipsec	Negotiates an IPsec tunnel for an L2TP connection.
ssl-client	Negotiates an SSL VPN tunnel with an SSL VPN client.
ssl-clientless	Provides VPN services to remote users via an HTTPS-enabled web browser, and does not require a client.

Defaults

The default is IPsec.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Group-policy configuration	•	—	•	—	—
Username configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	The **l2tp-ipsec** keyword was added.
7.3(1)	The **svc** keyword was added.
8.4(1)	The **ipsec** keyword was replaced by the **ikev1** and **ikev2** keywords.

Usage Guidelines

Use this command to configure one or more tunneling modes. You must configure at least one tunneling mode for users to connect over a VPN tunnel.

Note To support fallback from IPsec to SSL, the **vpn-tunnel-protocol** command must have both the **svc** and **ipsec** arguments configured.

Examples

The following example shows how to configure WebVPN and IPsec tunneling modes for the group policy named "FirstGroup":

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# vpn-tunnel-protocol webvpn
hostname(config-group-policy)# vpn-tunnel-protocol IPsec
```

Related Commands

Command	Description
address pools	Specifies a list of address pools for allocating addresses to remote clients.
show running-config group-policy	Displays the configuration for all group-policies or for a specific group-policy.

vpnclient connect

To attempt to establish an Easy VPN Remote connection to the configured server or servers, use the **vpnclient connect** command in global configuration mode.

vpnclient connect

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	—	—
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command applies only to the ASA 5505.

Examples

The following example shows how to attempt to establish an Easy VPN Remote connection to a configured EasyVPN server:

```
hostname(config)# vpnclient connect
hostname(config)#
```

vpnclient enable

To enable the Easy VPN Remote feature, use the **vpnclient enable** command in global configuration mode. To disable the Easy VPN Remote feature, use the **no** form of this command:

vpnclient enable

no vpnclient enable

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command applies only to the ASA 5505.

If you enter the **vpnclient enable** command, the ASA 5505 functions as a Easy VPN hardware client (also called “Easy VPN Remote”).

Examples

The following example shows how to enable the Easy VPN Remote feature:

```
hostname(config)# vpnclient enable
hostname(config)#
```

The following example shows how to disable the Easy VPN Remote feature:

```
hostname(config)# no vpnclient enable
hostname(config)#
```

vpnclient ipsec-over-tcp

To configure the ASA 5505 running as an Easy VPN hardware client to use TCP-encapsulated IPsec, use the **vpnclient ipsec-over-tcp** command in global configuration mode. To remove the attribute from the running configuration, use the **no** form of this command.

vpnclient ipsec-over-tcp [**port** *tcp_port*]

no vpnclient ipsec-over-tcp

Syntax Description

port	(Optional) Specifies the use of a particular port.
tcp_port	(Required if you specify the keyword **port**.) Specifies the TCP port number to be used for a TCP-encapsulated IPsec tunnel.

Defaults

The Easy VPN Remote connection uses port 10000 if the command does not specify a port number.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command applies only to the ASA 5505 running as an Easy VPN hardware client (also called "Easy VPN Remote").

By default, the Easy VPN client and server encapsulate IPsec in User Datagram Protocol (UDP) packets. Some environments, such as those with certain firewall rules, or NAT and PAT devices, prohibit UDP. To use standard Encapsulating Security Protocol (ESP, Protocol 50) or Internet Key Exchange (IKE, UDP 500) in such environments, you must configure the client and the server to encapsulate IPsec within TCP packets to enable secure tunneling. If your environment allows UDP, however, configuring IPsec over TCP adds unnecessary overhead.

If you configure an ASA 5505 to use TCP-encapsulated IPsec, enter the following command to let it send large packets over the outside interface:

```
hostname(config)# crypto ipsec df-bit clear-df outside
hostname(config)#
```

This command clears the Don't Fragment (DF) bit from the encapsulated header. A DF bit is a bit within the IP header that determines whether the packet can be fragmented. This command lets the Easy VPN hardware client send packets that are larger than the MTU size.

Examples

The following example shows how to configure the Easy VPN hardware client to use TCP-encapsulated IPsec, using the default port 10000, and to let it send large packets over the outside interface:

```
hostname(config)# vpnclient ipsec-over-tcp
hostname(config)# crypto ipsec df-bit clear-df outside
hostname(config)#
```

The next example shows how to configure the Easy VPN hardware client to use TCP-encapsulated IPsec, using the port 10501, and to let it send large packets over the outside interface:

```
hostname(config)# vpnclient ipsec-over-tcp port 10501
hostname(config)# crypto ipsec df-bit clear-df outside
hostname(config)#
```

vpnclient mac-exempt

To exempt devices behind an Easy VPN Remote connection from individual user authentication requirements, use the **vpnclient mac-exempt** command in global configuration mode. To remove the attribute from the running configuration, use the **no** form of this command.

vpnclient mac-exempt *mac_addr_1 mac_mask_1* [*mac_addr_2 mac_mask_2...mac_addr_n mac_mask_n*]

no vpnclient mac-exempt

Syntax Description

mac_addr_1	MAC address, in dotted hexadecimal notation, specifying a manufacturer and serial number of a device for which to exempt individual user authentication. For more than one device, specify each MAC address, separating each with a space and the respective network mask. The first 6 characters of the MAC address identify the device manufacturer, and the last 6 characters are the serial number. The last 24 bits are the unit's serial number in hexadecimal format.
mac_mask_1	Network mask for the corresponding MAC address. Use a space to separate the network mask and any subsequent MAC address and network mask pairs.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command applies only to the ASA 5505.

Devices such as Cisco IP phones, wireless access points, and printers are incapable of performing authentication, and therefore do not authenticate when individual unit authentication is enabled. If individual user authentication is enabled, you can use this command to exempt such devices from authentication. The exemption of devices from individual user authentication is also called "device pass-through."

The format for specifying the MAC address and mask in this command uses three hex digits, separated by periods; for example, the MAC mask ffff.ffff.ffff matches just the specified MAC address. A MAC mask of all zeroes matches no MAC address, and a MAC mask of ffff.ff00.0000 matches all devices made by the same manufacturer.

Note You must have Individual User Authentication and User Bypass configured on the headend device. For example, if you have the ASA as the headend, configure the following under group policy:

```
hostname(config-group-policy)# user-authentication enable
hostname(config-group-policy)# ip-phone-bypass enable
```

Examples

Cisco IP phones have the Manufacturer ID 00036b, so the following command exempts any Cisco IP phone, including Cisco IP phones, you might add in the future:

```
hostname(config)# vpnclient mac-exempt 0003.6b00.0000 ffff.ff00.0000
hostname(config)#
```

The next example provides greater security but less flexibility because it exempts one specific Cisco IP phone:

```
hostname(config)# vpnclient mac-exempt 0003.6b54.b213 ffff.ffff.ffff
hostname(config)#
```

vpnclient management

To generate IPsec tunnels for management access to the Easy VPN hardware client, use the **vpnclient management** command in global configuration mode.

vpnclient management tunnel *ip_addr_1 ip_mask_1* [*ip_addr_2 ip_mask_2...ip_addr_n ip_mask_n*]

vpnclient management clear

To remove the attribute from the running configuration, use the **no** form of this command, which sets up IPsec tunnels exclusively for management in accordance with the **split-tunnel-policy** and **split-tunnel-network-list** commands.

no vpnclient management

Syntax Description

clear	Uses normal routing to provide management access from the corporate network to the outside interface of the ASA 5505 running as an Easy VPN Client. This option does not create management tunnels. **Note** Use this option if a NAT device is operating between the client and the Internet.
ip_addr	IP address of the host or network for which to build a management tunnel from the Easy VPN hardware client. Use this argument with the **tunnel** keyword. Specify one or more IP addresses, separating each with a space and the respective network mask.
ip_mask	Network mask for the corresponding IP address. Use a space to separate the network mask and any subsequent IP address and network mask pairs.
tunnel	Automates the setup of IPsec tunnels specifically for management access from the corporate network to the outside interface of the ASA 5505 running as an Easy VPN Client.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command applies only to the ASA 5505 running as an Easy VPN Client (also called "Easy VPN Remote"). It assumes the ASA 5505 configuration contains the following commands:

vpnclient server to specify the peer.

vpnclient mode to specify the client mode (PAT) or network extension mode.

One of the following:

- **vpnclient vpngroup** to name the tunnel group and the IKE pre-shared key used for authentication on the Easy VPN server.
- **vpnclient trustpoint** to name the trustpoint identifying the RSA certificate to use for authentication

vpnclient enable to enable the ASA 5505 as an Easy VPN Client.

Note The public address of an ASA 5505 behind a NAT device is inaccessible unless you add static NAT mappings on the NAT device.

Note Regardless of your configuration, DHCP requests (including renew messages) should not flow over IPsec tunnels. Even with a vpnclient management tunnel, DHCP traffic is prohibited.

Examples

The following example shows how to generate an IPsec tunnel from the outside interface of the ASA 5505 to the host with the IP address/mask combination 192.168.10.10 255.255.255.0:

```
hostname(config)# vpnclient management tunnel 192.168.10.0 255.255.255.0
hostname(config)#
```

The following example shows how to provide management access to the outside interface of the ASA 5505 without using IPsec:

```
hostname(config)# vpnclient management clear
hostname(config)#
```

vpnclient mode

To configure the Easy VPN Remote connection for either client mode or network extension mode, use the **vpnclient mode** command in global configuration mode. To remove the attribute from the running configuration, use the **no** form of this command.

vpnclient mode {**client-mode** | **network-extension-mode**}

no vpnclient mode

Syntax Description

client-mode	Configures the Easy VPN Remote connection to use client mode (PAT).
network-extension-mode	Configures the Easy VPN Remote connection to use network extension mode (NEM).

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command applies only to the ASA 5505 running as an Easy VPN Client (also called "Easy VPN Remote). The Easy VPN Client supports one of two modes of operation: client mode or NEM. The mode of operation determines whether the inside hosts, relative to the Easy VPN Client, are accessible from the Enterprise network over the tunnel. Specifying a mode of operation is mandatory before making a connection because Easy VPN Client does not have a default mode.

- In client mode, the Easy VPN client performs port address translation (PAT) for all VPN traffic from its inside hosts. This mode requires no IP address management for either the inside address of the hardware client (which has a default RFC 1918 address assigned to it) or the inside hosts. Because of PAT, the inside hosts are not accessible from the enterprise network.
- In NEM, all nodes on the inside network and the inside interface are assigned addresses routable across the enterprise network. The inside hosts are accessible from the enterprise network over a tunnel. Hosts on the inside network are assigned IP addresses from an accessible subnet (statically or through DHCP). PAT is not applied to the VPN traffic when in network extension mode.

Note If the Easy VPN hardware client is using NEM and has connections to secondary servers, use the **crypto map set reverse-route** command on each headend device to configure dynamic announcements of the remote network using Reverse Route Injection (RRI).

Examples

The following example shows how to configure an Easy VPN Remote connection for client mode:

```
hostname(config)# vpnclient mode client-mode
hostname(config)#
```

The following example shows how to configure an Easy VPN Remote connection for NEM:

```
hostname(config)# vpnclient mode network-extension-mode
hostname(config)#
```

vpnclient nem-st-autoconnect

To configure the Easy VPN Remote connection to automatically initiate IPsec data tunnels when NEM and split tunneling are configured, use the **vpnclient nem-st-autoconnect** command in global configuration mode. To remove the attribute from the running configuration, use the **no** form of this command.

vpnclient nem-st-autoconnect

no vpnclient nem-st-autoconnect

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command applies only to the ASA 5505 running as an Easy VPN Client (also called "Easy VPN Remote").

Before entering the **vpnclient nem-st-autoconnect** command, ensure that network extension mode is enabled for the hardware client. Network extension mode lets hardware clients present a single, routable network to the remote private network over the VPN tunnel. IPsec encapsulates all traffic from the private network behind the hardware client to networks behind the ASA. PAT does not apply. Therefore, devices behind the ASA have direct access to devices on the private network behind the hardware client over the tunnel, and only over the tunnel, and vice versa. The hardware client must initiate the tunnel. After the tunnel is up, either side can initiate data exchange.

Note You must also configure the Easy VPN server to enable network extension mode. To do so, use the **nem enable** command in group-policy configuration mode.

IPsec data tunnels are automatically initiated and sustained when in network extension mode, except when split-tunneling is configured.

Examples

The following example shows how to configure an Easy VPN Remote connection to automatically connect in network extension mode with split-tunneling configured. Network extension mode is enabled for the group policy FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# nem enable
hostname(config)# vpnclient nem-st-autoconnect
hostname(config)#
```

Related Commands

Command	Description
nem	Enables network extension mode for hardware clients.

vpnclient server-certificate

To configure the Easy VPN Remote connection to accept only connections to Easy VPN servers with the specific certificates specified by the certificate map, use the **vpnclient server-certificate** command in global configuration mode. To remove the attribute from the running configuration, use the **no** form of this command.

vpnclient server-certificate *certmap_name*

no vpnclient server-certificate

Syntax Description

certmap_name	Specifies the name of a certificate map that specifies the acceptable Easy VPN server certificate. The maximum length is 64 characters.

Defaults

Easy VPN server certificate filtering is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command applies only to the ASA model 5505.

Use this command to enable Easy VPN server certificate filtering. You define the certificate map itself using the crypto ca certificate map and crypto ca certificate chain commands.

Examples

The following example shows how to configure an Easy VPN Remote connection to support only connections to Easy VPN servers with the certificate map name homeservers:

```
hostname(config)# vpnclient server-certificate homeservers
hostname(config)#
```

Related Commands

Command	Description
certificate	Adds the indicated certificate.
vpnclient trustpoint	Configures the RSA identity certificate to be used by the Easy VPN Remote connection.

vpnclient server

To configure the primary and secondary IPsec servers, for the Easy VPN Remote connection, use the **vpnclient server** command in global configuration mode. To remove the attribute from the running configuration, use the **no** form of this command.

vpnclient server *ip_primary_address* [*ip_secondary_address_1 ... ipsecondary_address_10*]

no vpnclient server

Syntax Description

ip_primary_address	IP address or DNS name of the primary Easy VPN (IPsec) server. Any ASA or VPN 3000 Concentrator Series can act as an Easy VPN server.
ip_secondary_address_n	(Optional) List of the IP addresses or DNS names of up to ten backup Easy VPN servers. Use a space to separate the items in the list.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command applies only to the ASA model 5505.

A server must be configured before a connection can be established. The **vpnclient server** command supports IPv4 addresses, the names database, or DNS names and resolves addresses in that order.

You can use either the IP address or the hostname of a server.

Examples

The following example associates the name headend-1 with the address 10.10.10.10 and uses the **vpnclient server** command to specify three servers: headend-dns.example.com (primary), headend-1 (secondary), and 192.168.10.10 (secondary):

```
hostname(config)# names
hostname(config)# 10.10.10.10 headend-1
hostname(config)# vpnclient server headend-dns.example.com headend-1 192.168.10.10
hostname(config)#
```

The following example shows how to configure a VPN client primary IPsec server with the IP address 10.10.10.15 and secondary servers with the IP addresses 10.10.10.30 and 192.168.10.45.

```
hostname(config)# vpnclient server 10.10.10.15 10.10.10.30 192.168.10.10
hostname(config)#
```

vpnclient trustpoint

To configure the RSA identity certificate to be used by the Easy VPN Remote connection, use the **vpnclient trustpoint** command in global configuration mode. To remove the attribute from the running configuration, use the **no** form of this command.

vpnclient trustpoint *trustpoint_name* [**chain**]

no vpnclient trustpoint

Syntax Description

chain	Sends the entire certificate chain.
trustpoint_name	Specifies the name of a trustpoint identifying the RSA certificate to use for authentication.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command applies only to the ASA model 5505 and only when using digital certificates.

Define the trustpoint using the **crypto ca trustpoint** command. A trustpoint represents a CA identity and possibly a device identity, based on a certificate issued by the CA. The commands within the trustpoint sub mode control CA-specific configuration parameters which specify how the ASA obtains the CA certificate, how the ASA obtains its certificate from the CA, and the authentication policies for user certificates issued by the CA.

Examples

The following example shows how to configure an Easy VPN Remote connection to use the specific identity certificate named central and to send the entire certificate chain:

```
hostname(config)# crypto ca trustpoint central
hostname(config)# vpnclient trustpoint central chain
hostname(config)#
```

Related Commands

Command	Description
crypto ca trustpoint	Enters the trustpoint submode for the specified trustpoint and manages trustpoint information.

vpnclient username

To configure the VPN username and password for the Easy VPN Remote connection, use the **vpnclient username** command in global configuration mode. To remove the attribute from the running configuration, use the **no** form of this command.

vpnclient username *xauth_username* **password** *xauth password*

no vpnclient username

Syntax Description

xauth_password	Specifies the password to use for XAUTH. The maximum length is 64 characters.
xauth_username	Specifies the username to use for XAUTH. The maximum length is 64 characters.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command applies only to the ASA 5505.

The XAUTH username and password parameters are used when secure unit authentication is disabled and the server requests XAUTH credentials. If secure unit authentication is enabled, these parameters are ignored, and the ASA prompts the user for a username and password.

Examples

The following example shows how to configure the Easy VPN Remote connection to use the XAUTH username testuser and the password ppurkm1:

```
hostname(config)# vpnclient username testuser password ppurkm1
hostname(config)#
```

vpnclient vpngroup

To configure the VPN tunnel group name and password for the Easy VPN Remote connection, use the **vpnclient vpngroup** command in global configuration mode. To remove the attribute from the running configuration, use the **no** form of this command.

vpnclient vpngroup *group_name* **password** *preshared_key*

no vpnclient vpngroup

Syntax Description

group_name	Specifies the name of the VPN tunnel group configured on the Easy VPN server. The maximum length is 64 characters, and no spaces are allowed.
preshared_key	The IKE pre-shared key used for authentication by the Easy VPN server. The maximum length is 128 characters.

Defaults

If the configuration of the ASA 5505 running as an Easy VPN client does not specify a tunnel group, the client attempts to use an RSA certificate.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

This command applies only to the ASA 5505 running as an Easy VPN client (also called "Easy VPN Remote").

Use the pre-shared key as the password. You must configure a server before establishing a connection.

Examples

The following example shows how to configure an Easy VPN Remote connectionwith a VPN tunnel group with the group name TestGroup1 and the password my_key123.

```
hostname(config)# vpnclient vpngroup TestGroup1 password my_key123
hostname(config)#
```

Related Commands

Command	Description
vpnclient trustpoint	Configures the RSA identity certificate to be used by the Easy VPN connection.

vpnsetup

To display a list of steps for configuring VPN connections on the ASA, use the **vpnsetup** command from global configuration mode.

vpnsetup {**ipsec-remote-access** | **l2tp-remote-access** | **site-to-site** | **ssl-remote-access**} **steps**

Syntax Description

ipsec-remote-access	Displays steps to configure the ASA to accept IPsec connections.
l2tp-remote-access	Displays steps to configure the ASA to accept L2TP connections.
site-to-site	Displays steps to configure the ASA to accept LAN-to-LAN connections.
ssl-remote-access	Displays steps to configure the ASA to accept SSL connections.
steps	Specifies to display the steps for the connection type.

Defaults

This command has no default settings

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	•	—

Command History

Release	Modification
8.0(3)	This command was introduced.
9.0(1)	Support for multiple context mode was added for site-to-site connections.

Examples

The following example shows the output of the **vpnsetup ssl-remote-access steps** command:

```
hostname(config-t)# vpnsetup ssl-remote-access steps

Steps to configure a remote access SSL VPN remote access connection and AnyConnect with
examples:

1. Configure and enable interface

    interface GigabitEthernet0/0
     ip address 10.10.4.200 255.255.255.0
     nameif outside
     no shutdown

    interface GigabitEthernet0/1
     ip address 192.168.0.20 255.255.255.0
     nameif inside
     no shutdown

2. Enable WebVPN on the interface
```

```
    webvpn
     enable outside

3. Configure default route

    route outside 0.0.0.0 0.0.0.0 10.10.4.200

4. Configure AAA authentication and tunnel group

    tunnel-group DefaultWEBVPNGroup type remote-access
    tunnel-group DefaultWEBVPNGroup general-attributes
     authentication-server-group LOCAL

5. If using LOCAL database, add users to the Database

    username test password t3stP@ssw0rd
    username test attributes
     service-type remote-access

Proceed to configure AnyConnect VPN client:

6. Point the ASA to an AnyConnect image

    webvpn
     svc image anyconnect-win-2.1.0148-k9.pkg

7. enable AnyConnect

    svc enable

8. Add an address pool to assign an ip address to the AnyConnect client

    ip local pool client-pool 192.168.1.1-192.168.1.254 mask 255.255.255.0

9. Configure group policy

    group-policy DfltGrpPolicy internal
    group-policy DfltGrpPolicy attributes
     vpn-tunnel-protocol svc webvpn

hostname(config-t)#
```

Related Commands

Command	Description
show running-config	Displays the running configuration of the ASA.

CHAPTER 68

wccp through zonelabs integrity ssl-client-authentication Commands

wccp

To allocate space and to enable support of the specified Web Cache Communication Protocol (WCCP) service for participation in a service group, use the **wccp** command in global configuration mode. To disable the service group and deallocate space, use the no form of this command.

wccp {**web-cache** | *service-number*} [**redirect-list** *access-list*] [**group-list** *access-list*] [**password** password]

no wccp {**web-cache** | *service-number*} [**redirect-list** *access-list*] [**group-list** *access-list*] [**password** password [**0** | **7**]]

Syntax Description

web-cache	Specifies the web-cache service. **Note** Web cache counts as one service. The maximum number of services, including those assigned with the service-number argument are 256
service-number	A dynamic service identifier, which means the service definition is dictated by the cache. The dynamic service number can be from 0 to 254 and up to 255. There is a maximum allowable number of 256 that includes the web-cache service specified with the **web-cache** keyword.
redirect-list	(Optional) Used with an access list that controls traffic redirected to this service group. The access-list argument should consist of a string of no more than 64 characters (name or number) that specifies the access list. The access list should only contain network addresses. Port-specific entries are not supported
access-list	Specifies the name of the access list.
group-list	(Optional) Access list that determines which web caches are allowed to participate in the service group. The access-list argument should consist of a string of no more than 64 characters (name or number) that specifies the access list.
password	(Optional) Specifies Message Digest 5 (MD5) authentication for messages received from the service group. Messages that are not accepted by the authentication are discarded.
password	Specifies the password to be used for authentication. The password argument can be up to seven characters in length.

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to enable WCCP for participation in a service group:

```
hostname(config)# wccp web-cache redirect-list jeeves group-list wooster password whatho
```

Related Commands

Commands	Description
show wccp	Displays the WCCP configuration.
wccp redirect	Enables support of WCCP redirection.

wccp redirect

To enable packet redirection on the ingress of an interface using Web Cache Communication Protocol (WCCP), use the **wccp redirect** command. To disable WCCP redirection, use the no form of this command.

wccp interface *interface_name service* **redirect in**

no wccp interface *interface_name service* **redirect in**

Syntax Description

interface_name	Name of the interface where packets should be redirected..
service	Specifies the service group. You can specify the **web-cache** keyword, or you can specify the identification number (from 0 to 99) of the service.
in	Specifies redirection when packet comes into this interface

Defaults

This command is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example shows how to enable WCCP redirection on the inside interface for the web-cache service:

```
hostname(config)# wccp interface inside web-cache redirect in
```

Related Commands

Commands	Description
show wccp	Displays the WCCP configuration.
wccp	Enables support of WCCP with service groups.

web-agent-url

To specify the SSO server URL to which the ASA makes SiteMinder-type SSO authentication requests, use the **web-agent-url** command in config-webvpn-sso-siteminder mode.

To remove an SSO server authentication URL, use the **no** form of this command.

web-agent-url *url*

no web-agent-url *url*

Note This command is required for SiteMinder-type SSO authentication.

Syntax Description

url	Specifies the authentication URL of the SiteMinder-type SSO server. Must contain http:// or https://.

Defaults

By default, an authentication URL is not configured.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Config-webvpn-sso-siteminder	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

Single-sign-on support, available only for WebVPN, lets users access different secure services on different servers without entering a username and password more than once. The SSO server has a URL that handles authentication requests.

This command applies only to the SiteMinder type of SSO server.

Use the **web-agent-url** command to configure the ASA to send authentications to this URL. Before configuring the authentication URL, you must create the SSO server using the **sso-server** command.

For https communication between the security appliance and SSO-server, make sure that the SSL encryption settings match on both sides. On the security appliance, verify this with the **ssl encryption** command.

Examples

The following example, entered in config-webvpn-sso-siteminder mode, specifies an authentication URL of http://www.example.com/webvpn:

```
hostname(config-webvpn)# sso-server example type siteminder
hostname(config-webvpn-sso-siteminder)# web-agent-url http://www.example.com/webvpn
hostname(config-webvpn-sso-siteminder)#
```

Related Commands

Command	Description
max-retry-attempts	Configures the number of times the ASA retries a failed SSO authentication attempt.
policy-server-secret	Creates a secret key used to encrypt authentication requests to a SiteMinder-type SSO server.
request-timeout	Specifies the number of seconds before a failed SSO authentication attempt times out.
show webvpn sso-server	Displays the operating statistics for all SSO servers configured on the security device.
ssl encryption	Specifies the encryption algorithms the SSL/TLS protocol uses.
sso-server	Creates a single sign-on server.

web-applications

To customize the Web Application box of the WebVPN Home page that is displayed to authenticated WebVPN users, use the **web-applications** command from webvpn customization mode:

web-applications {**title** | **message** | **dropdown**} {**text** | **style**} *value*

[**no**] **web-applications** {**title** | **message** | **dropdown**} {**text** | **style**} *value*

To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command.

Syntax Description

title	Specifies you are changing the title.
message	Specifies you are changing the message displayed under the title.
dropdown	Specifies you are changing the dropdown box.
text	Specifies you are changing the text.
style	Specifies you are changing the HTML style.
value	The actual text to display (maximum 256 characters), or Cascading Style Sheet (CSS) parameters (maximum 256 characters).

Defaults

The default title text is “Web Application”.

The default title style is background-color:#99CCCC;color:black;font-weight:bold;text-transform: uppercase

The default message text is “Enter Web Address (URL)”.

The default message style is background-color:#99CCCC;color:maroon;font-size:smaller.

The default dropdown text is “Web Bookmarks”.

The default dropdown style is border:1px solid black;font-weight:bold;color:black;font-size:80%.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Webvpn customization	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

The **style** option is expressed as any valid Cascading Style Sheet (CSS) parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium (W3C) website at www.w3.org. Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at www.w3.org/TR/CSS21/propidx.html.

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.
- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma separated entry indicates the level of intensity of each color to combine with the others.
- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.

Note To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

Examples

The following example changes the title to “Applications”, and the color of the text to blue:

```
hostname(config)# webvpn
hostname(config-webvpn)# customization cisco
hostname(config-webvpn-custom)# web-applications title text Applications
hostname(config-webvpn-custom)# web-applications title style color:blue
```

Related Commands

Command	Description
application-access	Customizes the Application Access box of the WebVPN Home page.
browse-networks	Customizes the Browse Networks box of the WebVPN Home page.
web-bookmarks	Customizes the Web Bookmarks title or links on the WebVPN Home page.
file-bookmarks	Customizes the File Bookmarks title or links on the WebVPN Home page.

web-bookmarks

To customize the Web Bookmarks title or links on the WebVPN Home page that is displayed to authenticated WebVPN users, use the **web-bookmarks** command from webvpn customization mode:

web-bookmarks {**link** {**style** *value*} | **title** {**style** *value* | **text** *value*}}

[**no**] **web-bookmarks** {**link** {**style** *value*} | **title** {**style** *value* | **text** *value*}}

To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command.

Syntax Description

link	Specifies you are changing the links.
title	Specifies you are changing the title.
style	Specifies you are changing the HTML style.
text	Specifies you are changing the text.
value	The actual text to display (maximum 256 characters), or Cascading Style Sheet (CSS) parameters (maximum 256 characters).

Defaults

The default link style is color:#669999;border-bottom: 1px solid #669999;text-decoration:none.

The default title style is color:#669999;background-color:#99CCCC;font-weight:bold.

The default title text is “Web Bookmarks”.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Webvpn customization	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines

The **style** option is expressed as any valid Cascading Style Sheet (CSS) parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium (W3C) website at www.w3.org. Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at www.w3.org/TR/CSS21/propidx.html.

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.

- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma separated entry indicates the level of intensity of each color to combine with the others.
- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.

Note To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

Examples

The following example customizes the Web Bookmarks title to "Corporate Web Bookmarks":

```
hostname(config)# webvpn
hostname(config-webvpn)# customization cisco
hostname(config-webvpn-custom)# web-bookmarks title text Corporate Web Bookmarks
```

Related Commands

Command	Description
application-access	Customizes the Application Access box of the WebVPN Home page.
browse-networks	Customizes the Browse Networks box of the WebVPN Home page.
file-bookmarks	Customizes the File Bookmarks title or links on the WebVPN Home page.
web-applications	Customizes the Web Application box of the WebVPN Home page.

webvpn

To enter webvpn mode, in global configuration mode, enter the **webvpn** command. To remove any commands entered with this command, use the **no webvpn** command. These webvpn commands apply to all WebVPN users.

These webvpn commands let you configure AAA servers, default group policies, default idle timeout, http and https proxies, and NBNS servers for WebVPN, as well as the appearance of WebVPN screens that end users see.

webvpn

no webvpn

Syntax Description

This command has no arguments or keywords.

Defaults

WebVPN is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•		—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This WebVPN mode lets you configure global settings for WebVPN. WebVPN mode, which you enter from either group-policy mode or username mode, lets you customize a WebVPN configuration for specific users or group policies. The ASA clientless SSL VPN configuration supports only one http-proxy and one https-proxy command each.

Note You must enable browser caching for WebVPN to work.

Examples

The following example shows how to enter WebVPN command mode:

```
hostname(config)# webvpn
hostname(config-webvpn)#
```

webvpn (group-policy and username modes)

To enter this webvpn mode, use the **webvpn** command in group-policy configuration mode or in username configuration mode. To remove all commands entered in webvpn mode, use the **no** form of this command. These webvpn commands apply to the username or group policy from which you configure them.

Webvpn commands for group policies and usernames define access to files, MAPI proxy, URLs and TCP applications over WebVPN. They also identify ACLs and types of traffic to filter.

webvpn

no webvpn

Syntax Description

This command has no arguments or keywords.

Defaults

WebVPN is disabled by default.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy configuration	•	—	•		—
Username configuration	•	—	•		—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Webvpn mode, which you enter from global configuration mode, lets you configure global settings for WebVPN. The **webvpn** command in group-policy attributes configuration mode or username attributes configuration mode applies the settings specified in the webvpn command to the group or user specified in the parent command. In other words, webvpn mode, described in this section, and which you enter from group-policy or username mode, lets you customize a WebVPN configuration for specific users or group policies.

The webvpn attributes that you apply for a specific group policy in group-policy attributes mode override those specified in the default group policy. The WebVPN attributes that you apply for a specific user in username attributes mode override both those in the default group policy and those in the group policy to which that user belongs. Essentially, these commands let you tweak the settings that would otherwise be inherited from the default group or the specified group policy. For information about the WebVPN settings, see the description of the **webvpn** command in global configuration mode.

The following table lists the attributes you can configure in webvpn group-policy attributes and username attributes mode. See the individual command descriptions for details.

Attribute	Description
auto-signon	Configures the ASA to automatically pass WebVPN user login credentials on to internal servers, providing a single sign-on method for WebVPN users.
customization	Specifies a preconfigured WebVPN customization to apply.
deny-message	Specifies a message to display to the user when access is denied.
filter	Identifies the access list to be used for WebVPN connections.
functions	Configures file access and file browsing, MAPI Proxy, and URL entry over WebVPN.
homepage	Sets the URL of the webpage that displays when WebVPN users log in.
html-content-filter	Identifies Java, ActiveX, images, scripts, and cookies to filter for WebVPN sessions.
http-comp	Specifies the HTTP compression algorithm to use.
keep-alive-ignore	Specifies the maximum object size to ignore for updating the session.
port-forward	Enables WebVPN application access.
port-forward-name	Configures the display name that identifies TCP port forwarding to end users.
sso-server	Configures the SSO server name.
svc	Configures SSL VPN Client attributes.
url-list	Identifies a list of servers and URLs that users can access via WebVPN.

Examples

The following example shows how to enter webvpn mode for the group policy named "FirstGroup":

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# webvpn
hostname(config-webvpn)#
```

The following example shows how to enter webvpn mode for the username named "test":

```
hostname(config)# group-policy test attributes
hostname(config-username)# webvpn
hostname(config-webvpn)#
```

Related Commands

clear configure group-policy	Removes the configuration for a particular group policy or for all group policies.
group-policy attributes	Enters config-group-policy mode, which lets you configure attributes and values for a specified group policy or lets you enter webvpn mode to configure webvpn attributes for the group.

show running-config group-policy	Displays the running configuration for a particular group policy or for all group policies.
webvpn	Enters config-group-webvpn mode, in which you can configure the WebVPN attributes for the specified group.

whitelist

For Cloud Web Security, to perform the whitelist action on the class of traffic, use the **whitelist** command in class configuration mode. You can access the class configuration mode by first entering the **policy-map type inspect scansafe** command, then the **parameters** command. To disable whitelisting, use the **no** form of this command.

whitelist

no whitelist

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Class configuration	•	•	•	•	—

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

Identify the traffic you want to whitelist using the **class-map type inspect scansafe** command. Use the inspection class map in the **policy-map type inspect scansafe** command, and specify the **whitelist** action for the class. Call the inspection policy map in the **inspect scansafe** command.

Examples

The following example whitelists the same users and groups for the HTTP and HTTPS inspection policy maps:

```
hostname(config)# class-map type inspect scansafe match-any whitelist1
hostname(config-cmap)# match user user1 group cisco
hostname(config-cmap)# match user user2
hostname(config-cmap)# match group group1
hostname(config-cmap)# match user user3 group group3

hostname(config)# policy-map type inspect scansafe cws_inspect_pmap1
hostname(config-pmap)# parameters
hostname(config-pmap-p)# http
hostname(config-pmap-p)# default group default_group
hostname(config-pmap-p)# class whitelist1
hostname(config-pmap-c)# whitelist
```

```
hostname(config)# policy-map type inspect scansafe cws_inspect_pmap2
hostname(config-pmap)# parameters
hostname(config-pmap-p)# https
hostname(config-pmap-p)# default group2 default_group2
hostname(config-pmap-p)# class whitelist1
hostname(config-pmap-c)# whitelist
```

Related Commands

Command	Description
class-map type inspect scansafe	Creates an inspection class map for whitelisted users and groups.
default user group	Specifies the default username and/or group if the ASA cannot determine the identity of the user coming into the ASA.
http[**s**] (parameters)	Specifies the service type for the inspection policy map, either HTTP or HTTPS.
inspect scansafe	Enables Cloud Web Security inspection on the traffic in a class.
license	Configures the authentication key that the ASA sends to the Cloud Web Security proxy servers to indicate from which organization the request comes.
match user group	Matches a user or group for a whitelist.
policy-map type inspect scansafe	Creates an inspection policy map so you can configure essential parameters for the rule and also optionally identify the whitelist.
retry-count	Enters the retry counter value, which is the amount of time that the ASA waits before polling the Cloud Web Security proxy server to check its availability.
scansafe	In multiple context mode, allows Cloud Web Security per context.
scansafe general-options	Configures general Cloud Web Security server options.
server {**primary** | **backup**}	Configures the fully qualified domain name or IP address of the primary or backup Cloud Web Security proxy servers.
show conn scansafe	Shows all Cloud Web Security connections, as noted by the capitol Z flag.
show scansafe server	Shows the status of the server, whether it's the current active server, the backup server, or unreachable.
show scansafe statistics	Shows total and current http connections.
user-identity monitor	Downloads the specified user or group information from the AD agent.

who

To display active Telnet administration sessions on the ASA, use the **who** command in privileged EXEC mode.

who [*local_ip*]

Syntax Description

local_ip	(Optional) Specifies to limit the listing to one internal IP address or network address, either IPv4 or IPv6.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **who** command allows you to display the TTY_ID and IP address of each Telnet client that is currently logged into the ASA.

Examples

This example shows the output of the **who** command when a client is logged into the ASA through a Telnet session:

```
hostname# who
0: 100.0.0.2
hostname# who 100.0.0.2
0: 100.0.0.2
hostname#
```

Related Commands

Command	Description
kill	Terminate a Telnet session.
telnet	Adds Telnet access to the ASA console and sets the idle timeout.

window-variation

To drop a connection with a window size variation, use the **window-variation** command in tcp-map configuration mode. To remove this specification, use the **no** form of this command.

window variation {**allow-connection** | **drop-connection**}

no window variation {**allow-connection** | **drop-connection**}

Syntax Description

allow-connection	Allows the connection.
drop-connection	Drops the connection.

Defaults

The default action is to allow the connection.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tcp-map configuration	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The **tcp-map** command is used along with the Modular Policy Framework infrastructure. Define the class of traffic using the **class-map** command and customize the TCP inspection with **tcp-map** commands. Apply the new TCP map using the **policy-map** command. Activate TCP inspection with **service-policy** commands.

Use the **tcp-map** command to enter tcp-map configuration mode. Use the **window-variation** command in tcp-map configuration mode to drop all connections with a window size that has been shrunk.

The window size mechanism allows TCP to advertise a large window and to subsequently advertise a much smaller window without having accepted too much data. From the TCP specification, “shrinking the window” is strongly discouraged. When this condition is detected, the connection can be dropped.

Examples

The following example shows how to drop all connections with a varied window size:

```
hostname(config)# access-list TCP extended permit tcp any any
hostname(config)# tcp-map tmap
hostname(config-tcp-map)# window-variation drop-connection
hostname(config)# class-map cmap
hostname(config-cmap)# match access-list TCP
hostname(config)# policy-map pmap
```

```
hostname(config-pmap)# class cmap
hostname(config-pmap)# set connection advanced-options tmap
hostname(config)# service-policy pmap global
```

Related Commands

Command	Description
class	Specifies a class map to use for traffic classification.
policy-map	Configures a policy; that is, an association of a traffic class and one or more actions.
set connection	Configures connection values.
tcp-map	Creates a TCP map and allows access to tcp-map configuration mode.

wins-server

To set the IP address of the primary and secondary WINS servers, use the **wins-server** command in group-policy configuration mode. To remove the attribute from the running configuration, use the **no** form of this command. This option allows inheritance of a WINS server from another group policy. To prevent inheriting a server, use the **wins-server none** command.

wins-server value {*ip_address*} [*ip_address*] | none

no wins-server

Syntax Description

none	Sets wins-servers to a null value, thereby allowing no WINS servers. Prevents inheriting a value from a default or specified group policy.
value *ip_address*	Specifies the IP address of the primary and secondary WINS servers.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Group-policy	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

Every time you issue the **wins-server** command you overwrite the existing setting. For example, if you configure WINS server x.x.x.x and then configure WINS server y.y.y.y, the second command overwrites the first, and y.y.y.y becomes the sole WINS server. The same holds true for multiple servers. To add a WINS server rather than overwrite previously configured servers, include the IP addresses of all WINS servers when you enter this command.

Examples

The following example shows how to configure WINS servers with the IP addresses 10.10.10.15, 10.10.10.30, and 10.10.10.45 for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# wins-server value 10.10.10.15 10.10.10.30 10.10.10.45
```

without-csd

To exempt certain users from running Cisco Secure Desktop on a per connection profile basis if they enter one of the entries in the group-urls table to establish the VPN session, use the **without-csd** command in tunnel webvpn configuration mode. To remove this command from the configuration, use the **no** form of the command.

```
hostname(config-tunnel-webvpn)# without-csd
hostname(config-tunnel-webvpn)#
```

Syntax Description

This command has no arguments or keywords.

Defaults

No default values. If the configuration of this ASA contains a **csd enable** command, the default behavior is to run Cisco Secure Desktop on each endpoint.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Tunnel webvpn configuration mode	•	—	•	—	—

Command History

Release	Modification
8.2(1)	This command was introduced.

Usage Guidelines

This command prevents Cisco Secure Desktop from running on the endpoint if the user enters a URL in the url-group list configured on this connection profile (called a tunnel group in the CLI). Entering this command prevents the detection of endpoint conditions for these sessions, so you may need to adjust the dynamic access policy (DAP) configuration.

Examples

The first command in the following example creates a group-url in which “example.com” is the domain of the security appliance and “no-csd” is the unique portion of the URL. When the user enters this URL, the ASA assigns this connection profile to the session. The **group-url** command is required for the **without-csd** command to have an effect. The **without-csd** command exempts the user from running Cisco Secure Desktop.

```
hostname(config-tunnel-webvpn)# group-url https://example.com/no-csd enable
hostname(config-tunnel-webvpn)# without-csd
hostname(config-tunnel-webvpn)#
```

Related Commands

Command	Description
csd enable	Enables Cisco Secure Desktop for all connection profiles that do not have a without-csd command.
csd image	Copies the Cisco Secure Desktop image named in the command, from the flash drive specified in the path to the running configuration.
group-url	Creates a group-url unique to this connection profile.

write erase

To erase the startup configuration, use the **write erase** command in privileged EXEC mode. The running configuration remains intact.

write erase

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command is not supported within a security context. Context startup configurations are identified by the **config-url** command in the system configuration. If you want to delete a context configuration, you can remove the file manually from the remote server (if specified) or clear the file from Flash memory using the **delete** command in the system execution space.

Examples

The following example erases the startup configuration:

```
hostname# write erase
Erase configuration in flash memory? [confirm] y
```

Related Commands

Command	Description
configure net	Merges a configuration file from the specified TFTP URL with the running configuration.
delete	Removes a file from Flash memory.
show running-config	Shows the running configuration.
write memory	Saves the running configuration to the startup configuration.

write memory

To save the running configuration to the startup configuration, use the **write memory** command in privileged EXEC mode.

write memory [**all** [**/noconfirm**]]

Syntax Description

/noconfirm	Eliminates the confirmation prompt when you use the **all** keyword.
all	From the system execution space in multiple context mode, this keyword saves all context configurations as well as the system configuration.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.2(1)	You can now save all context configurations with the **all** keyword.

Usage Guidelines

The running configuration is the configuration currently running in memory, including any changes you made at the command line. Changes are only preserved between reboots if you save them to the startup configuration, which is the configuration loaded into running memory at startup. The location of the startup configuration for single context mode and for the system in multiple context mode can be changed from the default location (a hidden file) to a location of your choosing using the **boot config** command. For multiple context mode, a context startup configuration is at the location specified by the **config-url** command in the system configuration.

In multiple context mode, you can enter the **write memory** command in each context to save the current context configuration. To save all context configurations, enter the **write memory all** command in the system execution space. Context startup configurations can reside on external servers. In this case, the ASA saves the configuration back to the server specified by the **config-url** command, except for HTTP and HTTPS URLs, which do not allow you to save the configuration back to the server. After the ASA saves each context with the **write memory all** command, the following message appears:

```
'Saving context 'b' ... ( 1/3 contexts saved ) '
```

Sometimes, a context is not saved because of an error. See the following information for errors:

- For contexts that are not saved because of low memory, the following message appears:

  ```
  The context 'context a' could not be saved due to Unavailability of resources
  ```

- For contexts that are not saved because the remote destination is unreachable, the following message appears:

```
The context 'context a' could not be saved due to non-reachability of destination
```

- For contexts that are not saved because the context is locked, the following message appears:

```
Unable to save the configuration for the following contexts as these contexts are
locked.
context ‘a’ , context ‘x’ , context ‘z’ .
```

  A context is only locked if another user is already saving the configuration or in the process of deleting the context.

- For contexts that are not saved because the startup configuration is read-only (for example, on an HTTP server), the following message report is printed at the end of all other messages:

```
Unable to save the configuration for the following contexts as these contexts have
read-only config-urls:
context ‘a’ , context ‘b’ , context ‘c’ .
```

- For contexts that are not saved because of bad sectors in the Flash memory, the following message appears:

```
The context 'context a' could not be saved due to Unknown errors
```

Because the system uses the admin context interfaces to access context startup configurations, the **write memory** command also uses the admin context interfaces. The **write net** command, however, uses the context interfaces to write a configuration to a TFTP server.

The **write memory** command is equivalent to the **copy running-config startup-config** command.

Examples

The following example saves the running configuration to the startup configuration:

```
hostname# write memory
Building configuration...
Cryptochecksum: e43e0621 9772bebe b685e74f 748e4454

19319 bytes copied in 3.570 secs (6439 bytes/sec)
[OK]
hostname#
```

Related Commands

Command	Description
admin-context	Sets the admin context.
configure memory	Merges the startup configuration with the running configuration.
config-url	Specifies the location of the context configuration.
copy running-config startup-config	Copies the running configuration to the startup configuration.
write net	Copies the running configuration to a TFTP server.

write net

To save the running configuration to a TFTP server, use the **write net** command in privileged EXEC mode.

write net [*server*:[*filename*] | :*filename*]

Syntax Description

:*filename*	Specifies the path and filename. If you already set the filename using the **tftp-server** command, then this argument is optional. If you specify the filename in this command as well as a name in the **tftp-server** command, the ASA treats the **tftp-server** command filename as a directory, and adds the **write net** command filename as a file under the directory. To override the **tftp-server** command value, enter a slash in front of the path and filename. The slash indicates that the path is not relative to the tftpboot directory, but is an absolute path. The URL generated for this file includes a double slash (//) in front of the filename path. If the file you want is in the tftpboot directory, you can include the path for the tftpboot directory in the filename path. If your TFTP server does not support this type of URL, use the **copy running-config tftp** command instead. If you specified the TFTP server address using the **tftp-server** command, you can enter the filename alone preceded by a colon (:).
server:	Sets the TFTP server IP address or name. This address overrides the address you set in the **tftp-server** command, if present. The default gateway interface is the highest security interface; however, you can set a different interface name using the **tftp-server** command.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

The running configuration is the configuration currently running in memory, including any changes you made at the command line.

In multiple context mode, this command saves only the current configuration; you cannot save all contexts with a single command. You must enter this command separately for the system and for each context. The **write net** command uses the context interfaces to write a configuration to a TFTP server. The **write memory** command, however, uses the admin context interfaces to save to the startup configuration because the system uses the admin context interfaces to access context startup configurations.

The **write net** command is equivalent to the **copy running-config tftp** command.

Examples

The following example sets the TFTP server and filename in the **tftp-server** command:

```
hostname# tftp-server inside 10.1.1.1 /configs/contextbackup.cfg
hostname# write net
```

The following example sets the server and filename in the **write net** command. The **tftp-server** command is not populated.

```
hostname# write net 10.1.1.1:/configs/contextbackup.cfg
```

The following example sets the server and filename in the **write net** command. The **tftp-server** command supplies the directory name, and the server address is overridden.

```
hostname# tftp-server 10.1.1.1 configs
hostname# write net 10.1.2.1:context.cfg
```

Related Commands

Command	Description
configure net	Merges a configuration file from the specified TFTP URL with the running configuration.
copy running-config tftp	Copies the running configuration to a TFTP server.
show running-config	Shows the running configuration.
tftp-server	Sets a default TFTP server and path for use in other commands.
write memory	Saves the running configuration to the startup configuration.

write standby

To copy the ASA or context running configuration to the failover standby unit, use the **write standby** command in privileged EXEC mode.

write standby

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

You should only use this command if the configuration standby unit or failover group becomes out-of-sync with the configuration of the active unit or failover group. This typically happens when commands are entered on the standby unit or failover group.

For Active/Standby failover, the **write standby** command writes the configuration stored in the RAM of the active failover unit to the RAM on the standby unit. Use the **write standby** command if the primary and secondary unit configurations have different information. Enter this command on the active unit.

For Active/Active failover, the **write standby** command behaves as follows:

- If you enter the **write standby** command in the system execution space, the system configuration and the configurations for all of the security contexts on the ASA is written to the peer unit. This includes configuration information for security contexts that are in the standby state. You must enter the command in the system execution space on the unit that has failover group 1 in the active state.
- If you enter the **write standby** command in a security context, only the configuration for the security context is written to the peer unit. You must enter the command in the security context on the unit where the security context appears in the active state.

Note After you enter the **write standby** command, the failover interfaces may go down momentarily while the configuration becomes re-synchronized.

Note The **write standby** command replicates the configuation to the running configuration of the peer unit; it does not save the configuration to the startup configuration. To save the configuration changes to the startup configuration, use the **copy running-config startup-config** command on the same unit that you entered the **write standby** command. The command will be replicated to the peer unit and the configuration saved to the startup configuration.

When Stateful Failover is enabled, the **write standby** command also replicates state information to the standby unit after the configuration replication is complete.

Examples

The following example writes the current running configuration to the standby unit:

```
hostname# write standby
Building configuration...
[OK]
hostname#
```

Related Commands

Command	Description
failover reload-standby	Forces the standby unit to reboot.

write terminal

To show the running configuration on the terminal, use the **write terminal** command in privileged EXEC mode.

write terminal

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

This command is equivalent to the **show running-config** command.

Examples

The following example writes the running configuration to the terminal:

```
hostname# write terminal
: Saved
:
ASA Version 7.0(0)61
multicast-routing
names
name 10.10.4.200 outside
!
interface GigabitEthernet0/0
 nameif inside
 security-level 100
 ip address 10.86.194.60 255.255.254.0
 webvpn enable
...
```

Related Commands

Command	Description
configure net	Merges a configuration file from the specified TFTP URL with the running configuration.
show running-config	Shows the running configuration.
write memory	Saves the running configuration to the startup configuration.

xlate per-session

To use multi-session PAT, use the **xlate per-session** command in global configuration mode. To remove a multi-session PAT rule, use the **no** form of this command.

xlate per-session {**permit** | **deny**} {**tcp** | **udp**} *source_ip* [*operator src_port*] *destination_ip operator dest_port*

no xlate per-session {**permit** | **deny**} {**tcp** | **udp**} *source_ip* [*operator src_port*] *destination_ip operator dest_port*

Syntax Description

permit	Creates a permit rule.
deny	Creates a deny rule.
tcp	Specifies TCP traffic.
udp	Specifies UDP traffic.
source_ip	For the source IP address, you can configure the following: • **host** *ip_address*—Specifies an IPv4 host address. • *ip_address mask*—Specifies an IPv4 network address and subnet mask. • *ipv6-address*/*prefix-length*—Specifies an IPv6 host or network address and prefix. • **any4** and **any6**—**any4** specifies only IPv4 traffic; and **any6** specifies any6 traffic.
operator src_port	(Optional) The *operator* matches the port numbers used by the source. The permitted operators are as follows: • lt—less than • gt—greater than • eq—equal to • neq—not equal to • range—an inclusive range of values. When you use this operator, specify two port numbers, for example: `range 100 200`

destination_ip	For the destination IP address, you can configure the following: • **host** *ip_address*—Specifies an IPv4 host address. • *ip_address mask*—Specifies an IPv4 network address and subnet mask. • *ipv6-address/prefix-length*—Specifies an IPv6 host or network address and prefix. • **any4** and **any6**—**any4** specifies only IPv4 traffic; and **any6** specifies any6 traffic.
operator dest_port	The *operator* matches the port numbers used by the destination. The permitted operators are as follows: • lt—less than • gt—greater than • eq—equal to • neq—not equal to • range—an inclusive range of values. When you use this operator, specify two port numbers, for example: `range 100 200`

Command Default

By default, all TCP traffic and UDP DNS traffic use a per-session PAT xlate. The following default rules are installed:

```
xlate per-session permit tcp any4 any4
xlate per-session permit tcp any4 any6
xlate per-session permit tcp any6 any4
xlate per-session permit tcp any6 any6
xlate per-session permit udp any4 any4 eq domain
xlate per-session permit udp any4 any6 eq domain
xlate per-session permit udp any6 any4 eq domain
xlate per-session permit udp any6 any6 eq domain
```

Note You cannot remove these rules, and they always exist after any manually-created rules. Because rules are evaluated in order, you can override the default rules. For example, to completely negate these rules, you could add the following deny rules:

```
xlate per-session deny tcp any4 any4
xlate per-session deny tcp any4 any6
xlate per-session deny tcp any6 any4
xlate per-session deny tcp any6 any6
xlate per-session deny udp any4 any4 eq domain
xlate per-session deny udp any4 any6 eq domain
xlate per-session deny udp any6 any4 eq domain
xlate per-session deny udp any6 any6 eq domain
```

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	—

Command History

Release	Modification
9.0(1)	We introduced this command.

Usage Guidelines

The per-session PAT feature improves the scalability of PAT and, for clustering, allows each member unit to own PAT connections; multi-session PAT connections have to be forwarded to and owned by the master unit. At the end of a per-session PAT session, the ASA sends a reset and immediately removes the xlate. This reset causes the end node to immediately release the connection, avoiding the TIME_WAIT state. Multi-session PAT, on the other hand, uses the PAT timeout, by default 30 seconds. For "hit-and-run" traffic, such as HTTP or HTTPS, the per-session feature can dramatically increase the connection rate supported by one address. Without the per-session feature, the maximum connection rate for one address for an IP protocol is approximately 2000 per second. With the per-session feature, the connection rate for one address for an IP protocol is 65535/*average-lifetime*.

By default, all TCP traffic and UDP DNS traffic use a per-session PAT xlate. For traffic that can benefit from multi-session PAT, such as H.323, SIP, or Skinny, you can disable per-session PAT be creating a per-session deny rule.

When you add a per-session PAT rule, the rule is placed above the default rules, but below any other manually-created rules. Be sure to create your rules in the order you want them applied.

Examples

The following example creates a deny rule for H.323 traffic, so that it uses multi-session PAT:

```
hostname(config)# xlate per-session deny tcp any4 209.165.201.7 eq 1720
hostname(config)# xlate per-session deny udp any4 209.165.201.7 range 1718 1719
```

Related Commands

Command	Description
clear configure xlate	Clears the **xlate per-session** rules.
nat (global)	Adds a twice NAT rule.
nat (object)	Adds an object NAT rule.
show running-config xlate	Shows the **xlate per-session** rules.

zonelabs-integrity fail-close

To configure the ASA so that connections to VPN clients close when the connection between the ASA and the Zone Labs Integrity Firewall Server fails, use the **zonelabs-integrity fail-close** command in global configuration mode.To reinstate the default whereby the VPN connections remain open on failure of the Zone Labs connection, use the **no** form of this command.

zonelabs-integrity fail-close

no zonelabs-integrity fail-close

Syntax Description

This command has no arguments or keywords.

Defaults

By default, the conncection remains open on failure.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

If the primary Zone Labs Integrity Firewall Server does not respond to the ASA, the ASA still establishes VPN client connections to the private network by default. It also maintains open, existing connections. This ensures that the enterprise VPN is not distrupted by the failure of a firewall server. If, however, you do not want the VPN connections to remain operational if the Zone Labs Integrity Firewall Server fails, use the **zonelabs-integrity fail-close** command.

To return to the default condition whereby the ASA maintains client VPN connections if the connection to the Zone Labs Integrity Firewall Server fails, use the **zonelabs-integrity fail-open** command.

Examples

The following example configures the ASA to close the VPN client connections if the Zone Labs Integrity Firewall Server fails to respond or if the connection is interrupted:

```
hostname(config)# zonelabs-integrity fail-close
hostname(config)#
```

Related Commands

Command	Description
zonelabs-integrity fail-open	Specifies that VPN client connections to the ASA remain open after the connection between the ASA and the Zone Labs Integrity Firewall Server fails.
zonelabs-integrity fail-timeout	Specifies the time in seconds before the ASA declares a nonresponsive Zone Labs Integrity Firewall Server unreachable.
zonelabs-integrity server-address	Adds Zone Labs Integrity Firewall Servers to the ASA configuration.

zonelabs-integrity fail-open

To keep remote VPN client connections to the ASA open after the connection between the ASA and the Zone Labs Integrity Firewall Server fails, use the **zonelabs-integrity fail-open** command in global configuration mode. To close connections to VPN clients upon failure of the Zone Labs server connection, use the **no** form of this command.

zonelabs-integrity fail-open

no zonelabs-integrity fail-open

Syntax Description

This command has no arguments or keywords.

Defaults

By default, remote VPN connections remain open if the ASA does not establish or maintain a connection to the Zone Labs Integrity Firewall Server.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

If the primary Zone Labs Integrity Firewall Server does not respond to the ASA, the ASA still establishes VPN client connections to the private network by default. It also maintains existing open connections. This ensures that the enterprise VPN is not disrupted by the failure of a firewall server. If, however, you do not want the VPN connections to remain operational if the Zone Labs Integrity Firewall Server fails, use the **zonelabs-integrity fail-close** command. To then return to the default condition whereby the ASA maintains client VPN connections if the connection to the Zone Labs Integrity Firewall Server fails, use the **zonelabs-integrity fail-open** command or the **no zonelabs-integrity fail-open** command.

Examples

The following example reinstates the default condition whereby the VPN client connections remain open if the connection to the Zone Labs Integrity Firewall Server fails:

```
hostname(config)# zonelabs-integrity fail-open
hostname(config)#
```

Related Commands

Command	Description
zonelabs-integrity fail-close	Specifies that the ASA close VPN client connections when the connection between the ASA and the Zone Labs Integrity Firewall Server fails.
zonelabs-integrity fail-timeout	Specifies the time in seconds before the ASA declares a nonresponsive Zone Labs Integrity Firewall Server unreachable.

zonelabs-integrity fail-timeout

To specify the time in seconds before the ASA declares a nonresponsive Zone Labs Integrity Firewall Server unreachable, use the **zonelabs-integrity fail-timeout** command in global configuration mode. To restore the default timeout of 10 seconds, use the **no** form of this command without an argument.

zonelabs-integrity fail-timeout *timeout*

no zonelabs-integrity fail-timeout

Syntax Description

timeout	The number of seconds before the ASA declares a nonresponsive Zone Labs Integrity Firewall Servers unreachable. The acceptable range is from 5 to 20 seconds.

Defaults

The default timeout value is 10 seconds.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

If the ASA waits for the specified number of seconds without a response from the Zone Labs server, the server is declared nonresponsive. Connections to VPN clients either remain open by default or if configured to do so with the **zonelabs-integrity fail-open** command. If, however, the **zonelabs-integrity fail-close** command has been issued, the connections will close when the ASA declares the Integrity server unresponsive.

Examples

The following example configures the ASA to declare the active Zone Labs Intergity Server to be unreachable after 12 seconds:

```
hostname(config)# zonelabs-integrity fail-timeout 12
hostname(config)#
```

Related Commands

Command	Description
zonelabs-integrity fail-open	Specifies that VPN client connections to the ASA remain open after the connection between the ASA and the Zone Labs Integrity Firewall Server fails.
zonelabs-integrity fail-close	Specifies that the ASA close VPN client connections when the connection between the ASA and the Zone Labs Integrity Firewall Server fails.
zonelabs-integrity server-address	Adds Zone Labs Integrity Firewall Servers to the ASA configuration.

zonelabs-integrity interface

To specify an ASA interface for communication with the Zone Labs Integrity Server, use the **zonelabs-integrity interface** command in global configuration mode. To reset the Zone Labs Integrity Firewall Server interface back to the default of none, use the **no** form of this command.

zonelabs-integrity interface *interface*

no zonelabs-integrity interface

Syntax Description

interface	Specifies the ASA interface on which the Zone Labs Integrity Firewall Server communicates. It is often an interface name created with the **nameif** command.

Defaults

By default, the Zone Labs Integrity Firewall Server interface is set to none.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Examples

The following example configures three Zone Labs Intergity Servers using IP addresses ranging from 10.0.0.5 to 10.0.0.7. The commands also configure the ASA to listen to the server on port 300 and on an interface called inside:

```
hostname(config)# zonelabs-integrity server-address 10.0.0.5 10.0.0.6 10.0.0.7
hostname(config)# zonelabs-integrity port 300
hostname(config)# zonelabs-integrity interface inside
hostname(config)#
```

Related Commands

Command	Description
zonelabs-integrity port	Specifies a port on the ASA for communicating with a Zone Labs Integrity Firewall Server.
zonelabs-integrity server-address	Adds Zone Labs Integrity Firewall Servers to the ASA configuration.

Command	Description
zonelabs-integrity ssl-certificate-port	Specifies an ASA port to which the Zone Labs Integrity Firewall Server will connect when retrieving an SSL certificate.
zonelabs-integrity ssl-client-authentication	Enables authentication of the Zone Labs Integrity Firewall Server SSL certificate by the ASA.

zonelabs-integrity port

To specify a port on the ASA for communicating with a Zone Labs Integrity Firewall Server, use the **zonelabs-integrity port** command in global configuration mode. To revert to the default port of 5054 for the Zone Labs Integrity Firewall Server, use the **no** form of this command.

zonelabs-integrity port *port_number*

no zonelabs-integrity port *port_number*

Syntax Description

port	Specifies a Zone Labs Integrity Firewall Server port on the ASA.
port_number	The number of the Zone Labs Integrity Firewall Server port. It can range from 10 to 10000.

Defaults

The default Zone Labs Integrity Firewall Server port is 5054.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

The ASA listens to the Zone Labs Integrity Firewall Server on the port and interface configured with the **zonelabs-integrity port** and **zonelabs-integrity interface** commands respectively.

Note The current release of the ASA supports one Integrity Server at a time even though the user interfaces support the configuration of up to five Integrity Servers. If the active Server fails, configure another Integrity Server on the ASA and then reestablish the client VPN session.

Examples

The following example configures a Zone Labs Integrity Servers using the IP address 10.0.0.5. The commands also configure the ASA to listen to the active Zone Labs server on port 300 instead of the default 5054 port:

```
hostname(config)# zonelabs-integrity server-address 10.0.0.5
hostname(config)# zonelabs-integrity port 300
hostname(config)#
```

Related Commands

Command	Description
zonelabs-integrity interface	Specifies the ASA interface on which it communicates with the active Zone Labs Integrity Server.
zonelabs-integrity server-address	Adds Zone Labs Integrity Firewall Servers to the ASA configuration.
zonelabs-integrity ssl-certificate-port	Specifies an ASA port to which the Zone Labs Integrity Firewall Server will connect when retrieving an SSL certificate.
zonelabs-integrity ssl-client-authentication	Enables authentication of the Zone Labs Integrity Firewall Server SSL certificate by the ASA.

zonelabs-integrity server-address

To add Zone Labs Integrity Firewall Servers to the ASA configuration, use the **zonelabs-integrity server-address** command in global configuration mode. Specify the Zone Labs server by either IP address or hostname.

To remove Zone Labs Integrity Firewall Servers from the running configuration, use the **no** form of this command without arguments.

zonelabs-integrity server-address {*hostname1* | *ip-address1*}

no zonelabs-integrity server-address

Note While the user interfaces appear to support the configuration of multiple Integrity Servers, the ASA only supports one server at a time in the current release.

Syntax Description

hostname	Specifies the hostname of the Zone Labs Integrity Firewall Server. See the **name** command for hostname guidelines.
ip-address	Specifies the IP address of the Zone Labs Integrity Firewall Server.

Command Default

By default, no Zone Labs Integrity Firewall Servers are configured.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

With this release, you can configure one Zone Labs Integrity Firewall Server. If that server fails, configure another Integrity Server first and then reestablish the client VPN session.

To specify a server by hostname, you must first configure the Zone Labs server name using the **name** command. Before using the **name** command, use the **names** command to enable it.

Note The current release of the security appliance supports one Integrity Server at a time even though the user interfaces support the configuration of up to five Integrity Servers. If the active Server fails, configure another Integrity Server on the ASA and then reestablish the client VPN session.

Examples

The following example assigns the server name ZL-Integrity-Svr to the IP address 10.0.0.5 and configures a Zone Labs Intergity Server using that name:

```
hostname(config)# names
hostname(config)# name 10.0.0.5 ZL-Integrity-Svr
hostname(config)# zonelabs-integrity server-address ZL-Integrity-Svr
hostname(config)#
```

Related Commands

Command	Description
zonelabs-integrity fail-close	Specifies that the ASA close VPN client connections when the connection between the ASA and the Zone Labs Integrity Firewall Server fails.
zonelabs-integrity interface	Specifies the ASA interface on which it communicates with the active Zone Labs Integrity Server.
zonelabs-integrity port	Specifies a port on the ASA for communicating with a Zone Labs Integrity Firewall Server.
zonelabs-integrity ssl-certificate-port	Specifies an ASA port to which the Zone Labs Integrity Firewall Server will connect when retrieving an SSL certificate.
zonelabs-integrity ssl-client-authentication	Enables authentication of the Zone Labs Integrity Firewall Server SSL certificate by the ASA.

zonelabs-integrity ssl-certificate-port

To specify an ASA port to which the Zone Labs Integrity Firewall Server will connect when retrieving an SSL certificate, use the **zonelabs-integrity ssl-certificate-port** command in global configuration mode. To revert to the default port number (80), use the **no** form of this command without an argument.

zonelabs-integrity ssl-certificate-port *cert-port-number*

no zonelabs-integrity ssl-certificate-port

Syntax Description

cert-port-number	Specifies a port number on which the ASA expects the Zone Labs Integrity Firewall Server to connect when requesting an SSL certificate.

Defaults

By default, the ASA expects the Zone Labs Integrity Firewall Server to request an SSL certificate on port 80.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

For SSL communications between the ASA and the Zone Labs Integrity Firewall Server, the ASA is the SSL server and the Zone Labs server is the SSL client. When initiating an SSL connection, the certificate of the SSL server (ASA) must be authenticated by the client (Zone Labs server). The **zonelabs-integrity ssl-certificate-port** command specifies the port to which the Zone Labs server connects when requesting the SSL server certificate.

Examples

The following example configures port 30 on the ASA to receive SSL certificate requests from the Zone Labs Integrity Server:

```
hostname(config)# zonelabs-integrity ssl-certificate-port 30
hostname(config)#
```

Related Commands

Command	Description
zonelabs-integrity port	Specifies a port on the ASA for communicating with a Zone Labs Integrity Firewall Server.
zonelabs-integrity interface	Specifies the ASA interface on which it communicates with the active Zone Labs Integrity Server.
zonelabs-integrity server-address	Adds Zone Labs Integrity Firewall Servers to the ASA configuration.
zonelabs-integrity ssl-client-authentication	Enables authentication of the Zone Labs Integrity Firewall Server SSL certificate by the ASA.

zonelabs-integrity ssl-client-authentication

To enable authentication of the Zone Labs Integrity Firewall Server SSL certificate by the ASA, use the **zonelabs-integrity ssl-client-authentication** command in global configuration mode with the *enable* argument. To disable authentication of the Zone Labs SSL certificate, use the *disable* argument or use the **no** form of this command without an argument.

zonelabs-integrity ssl-client-authentication {*enable* | *disable*}

no zonelabs-integrity ssl-client-authentication

Syntax Description

disable	Specifies the IP address of the Zone Labs Integrity Firewall Server.
enable	Specifies that the ASA authenticates the SSL certificate of the Zone Labs Integrity Firewall Server.

Defaults

By default, ASA authentication of the Zone Labs Integrity Firewall Server SSL certificate is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	—	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines

For SSL communications between the ASA and the Zone Labs Integrity Firewall Server, the ASA is the SSL server and the Zone Labs server is the SSL client. When initiating an SSL connection, the certificate of the SSL server (ASA) must be authenticated by the client (Zone Labs server). Authentication of the client certificate is optional, however. You use the **zonelabs-integrity ssl-client-authentication** command to enable or disable ASA authentication of the Zone Lab server (SSL client) certificate.

Examples

The following example configures the ASA to authenticate the SSL certificate of the Zone Labs Integrity Server:

```
hostname(config)# zonelabs-integrity ssl-client-authentication enable
hostname(config)#
```

Related Commands

Command	Description
zonelabs-integrity interface	Specifies the ASA interface on which it communicates with the active Zone Labs Integrity Server.
zonelabs-integrity port	Specifies a port on the ASA for communicating with a Zone Labs Integrity Firewall Server.
zonelabs-integrity server-address	Adds Zone Labs Integrity Firewall Servers to the ASA configuration.
zonelabs-integrity ssl-certificate-port	Specifies an ASA port to which the Zone Labs Integrity Firewall Server will connect when retrieving an SSL certificate.

Cisco IOS Commands for the ASASM

clear diagnostics loopback

To clear the online diagnostic test configuration, use the **clear diagnostic loopback** command command in privileged EXEC mode.

clear diagnostics loopback

Syntax Description

This command has no arguments or keywords

Defaults

No default behavior or values.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.2(18)SXF5	This command was introduced.

Usage Guidelines

The **clear diagnostics loopback command** clears the online diagnostic test configuration.

Examples

The following is sample output from the **clear diagnostics loopback** command:

```
hostname# clear diagnostics loopback

Port    Test    Pkts-received  Failures
0       0       0              0
1       0       0              0
```

Related Commands

Command	Description
show diagnostics loopback	Shows the information related to the PC loopback test, the number of tests run, the number of loopback packets received, and the number of failures detected.

firewall autostate

To enable autostate messaging, use the **firewall autostate** command in global configuration mode. To disable autostate, use the **no** form of this command.

firewall autostate

no firewall autostate

Syntax Description

This command has no arguments or keywords.

Defaults

By default, autostate is disabled.

Command Modes

Global configuration

Command History

Release	Modification
12.2(18)SXF5	This command was introduced.

Usage Guidelines

Autostate messaging lets the ASA quickly detect that a switch interface has failed or has come up. The supervisor engine can send autostate messages to the ASA about the status of physical interfaces associated with ASA VLANs. For example, when all physical interfaces associated with a VLAN go down, the autostate message tells the ASA that the VLAN is down. This information lets the ASA declare the VLAN as down, bypassing the interface monitoring tests normally required for determining which side suffered a link failure. Autostate messaging provides a dramatic improvement in the time the ASA takes to detect a link failure (a few milliseconds as compared to up to 45 seconds without autostate support).

The switch supervisor sends an autostate message to the ASA when:

- The last interface belonging to a VLAN goes down.
- The first interface belonging to a VLAN comes up.

Examples

The following example enables autostate messaging:

```
Router(config)# firewall autostate
```

Related Commands

Command	Description
show firewall autostate	Shows the setting of the autostate feature.

firewall module

To assign firewall groups to the ASA, enter the **firewall module** command in global configuration mode. To remove the groups, use the **no** form of this command.

firewall module *module_number* **vlan-group** *firewall_group*

no firewall module *module_number* **vlan-group** *firewall_group*

Syntax Description

module_number	Specifies the module number. Use the **show module** command to view installed modules and their numbers.
vlan-group *firewall_group*	Specifies one or more group numbers as defined by the **firewall vlan-group** command: • A single number (*n*) • A range (*n-x*) Separate numbers or ranges by commas. For example, enter the following numbers: `5,7-10`

Defaults

No default behavior or values.

Command Modes

Global configuration

Command History

Release	Modification
12.2(18)SXF5	This command was introduced.

Usage Guidelines

- You can assign up to 16 firewall VLAN groups to each ASASM. (You can create more than 16 VLAN groups in Cisco IOS software, but only 16 can be assigned per ASASM.) See the **firewall vlan-group** command to create a group. For example, you can assign all the VLANs to one group; or you can create an inside group and an outside group; or you can create a group for each customer.
- There is no limit on the number of VLANs per group, but the ASASM can only use VLANs up to the ASASM system limit (see the ASASM licensing documentation for more information).
- You cannot assign the same VLAN to multiple firewall groups.
- You can assign a single firewall group to multiple ASASMs. VLANs that you want to assign to multiple ASASMs, for example, can reside in a separate group from VLANs that are unique to each ASASM.
- If you are using ASASM failover within the same switch chassis, do not assign the VLAN(s) that you are reserving for failover and stateful communications to a switch port. However, if you are using failover between chassis, you must include the VLANs in the trunk port between the chassis.

- If you do not add the VLANs to the switch before you assign them to the ASASM, the VLANs are stored in the supervisor engine database and are sent to the ASASM as soon as they are added to the switch.
- You can configure a VLAN in the ASASM configuration before it has been assigned on the switch. Note that when the switch sends the VLAN to the ASASM, the VLAN defaults to be administratively up on the ASASM, regardless of whether the you shut them down in the ASASM configuration. You need to shut them down again in this case.

Examples

The following example shows how to create three firewall VLAN groups: one for each ASA, and one that includes VLANs assigned to both ASAs.

```
Router(config)# firewall vlan-group 50 55-57
Router(config)# firewall vlan-group 51 70-85
Router(config)# firewall vlan-group 52 100
Router(config)# firewall module 5 vlan-group 50,52
Router(config)# firewall module 8 vlan-group 51,52
```

The following is sample output from the **show firewall vlan-group** command:

```
Router# show firewall vlan-group
Group vlans
----- ------
   50 55-57
   51 70-85
   52 100
```

The following is sample output from the **show firewall module** command, which shows all VLAN groups:

```
Router# show firewall module
Module Vlan-groups
  5    50,52
  8    51,52
```

Related Commands

Command	Description
firewall vlan-group	Assigns VLANs to a VLAN group.
show firewall module vlan-group	Shows the VLAN groups and the VLANs assigned to them.
show module	Shows all installed modules.

firewall multiple-vlan-interfaces

To allow you to add more than one SVI to the ASA, use the **firewall multiple-vlan-interfaces** command in global configuration mode. To disable this feature, use the **no** form of this command.

firewall multiple-vlan-interfaces

no firewall multiple-vlan-interfaces

Syntax Description

This command has no arguments or keywords.

Defaults

By default, multiple SVIs are not allowed.

Command Modes

Global configuration

Command History

Release	Modification
12.2(18)SXF5	This command was introduced.

Usage Guidelines

A VLAN defined on the MSFC is called a switched virtual interface. If you assign the VLAN used for the SVI to the ASA, then the MSFC routes between the ASA and other Layer 3 VLANs. For security reasons, by default, only one SVI can exist between the MSFC and the ASA. For example, if you misconfigure the system with multiple SVIs, you could accidentally allow traffic to pass around the ASA by assigning both the inside and outside VLANs to the MSFC.

However, you might need to bypass the ASA in some network scenarios. For example, if you have an IPX host on the same Ethernet segment as IP hosts, you will need multiple SVIs. Because the ASA in routed firewall mode only handles IP traffic and drops other protocol traffic like IPX (transparent firewall mode can optionally allow non-IP traffic), you might want to bypass the ASA for IPX traffic. Make sure to configure the MSFC with an access list that allows only IPX traffic to pass on the VLAN.

For transparent firewalls in multiple context mode, you need to use multiple SVIs because each context requires a unique VLAN on its outside interface. You might also choose to use multiple SVIs in routed mode so you do not have to share a single VLAN for the outside interface.

Examples

The following example shows a typical configuration with multiple SVIs:

```
Router(config)# firewall vlan-group 50 55-57
Router(config)# firewall vlan-group 51 70-85
Router(config)# firewall module 8 vlan-group 50-51
Router(config)# firewall multiple-vlan-interfaces
Router(config)# interface vlan 55
Router(config-if)# ip address 10.1.1.1 255.255.255.0
Router(config-if)# no shutdown
Router(config-if)# interface vlan 56
Router(config-if)# ip address 10.1.2.1 255.255.255.0
Router(config-if)# no shutdown
Router(config-if)# end
```

```
Router#
```

The following is sample output from the **show interface** command:

```
Router# show interface vlan 55
Vlan55 is up, line protocol is up
  Hardware is EtherSVI, address is 0008.20de.45ca (bia 0008.20de.45ca)
  Internet address is 55.1.1.1/24
  MTU 1500 bytes, BW 1000000 Kbit, DLY 10 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  ARP type:ARPA, ARP Timeout 04:00:00
  Last input never, output 00:00:08, output hang never
  Last clearing of "show interface" counters never
  Input queue:0/75/0/0 (size/max/drops/flushes); Total output drops:0
  Queueing strategy:fifo
  Output queue :0/40 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
  L2 Switched:ucast:196 pkt, 13328 bytes - mcast:4 pkt, 256 bytes
  L3 in Switched:ucast:0 pkt, 0 bytes - mcast:0 pkt, 0 bytes mcast
  L3 out Switched:ucast:0 pkt, 0 bytes
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     4 packets output, 256 bytes, 0 underruns
     0 output errors, 0 interface resets
     0 output buffer failures, 0 output buffers swapped out
```

Related Commands

Command	Description
firewall module	Assigns a VLAN group to the ASA.
firewall vlan-group	Defines a VLAN group.

firewall vlan-group

To assign VLANs to a firewall group, enter the **firewall vlan-group** command in global configuration mode. To remove the VLANs, use the **no** form of this command.

firewall [**switch** {**1** |**2**}] **vlan-group** *firewall_group vlan_range*

no firewall [**switch** {**1** |**2**}] **vlan-group** *firewall_group vlan_range*

Syntax Description

firewall_group	Specifies the group ID as an integer.
vlan_range	Specifies the VLANs assigned to the group. The *vlan_range* value can be one or more VLANs (2 to 1000 and from 1025 to 4094) identified in one of the following ways: • A single number (*n*) • A range (*n-x*) Separate numbers or ranges by commas. For example, enter the following numbers: `5,7-10,13,45-100` **Note** Routed ports and WAN ports consume internal VLANs, so it is possible that VLANs in the 1020-1100 range might already be in use.
switch {**1** | **2**}	(Optional) For VSS configurations, specifies the switch number.

Defaults

No default behavior or values.

Command Modes

Global configuration.

Command History

Release	Modification
12.2(18)SXF5	This command was introduced.

Usage Guidelines

- You can assign up to 16 firewall VLAN groups to each ASASM using the **firewall module** command. (You can create more than 16 VLAN groups in Cisco IOS software, but only 16 can be assigned per ASASM.) For example, you can assign all the VLANs to one group; or you can create an inside group and an outside group; or you can create a group for each customer.
- There is no limit on the number of VLANs per group, but the ASASM can only use VLANs up to the ASASM system limit (see the ASASM licensing documentation for more information).
- You cannot assign the same VLAN to multiple firewall groups.
- You can assign a single firewall group to multiple ASASMs. VLANs that you want to assign to multiple ASASMs, for example, can reside in a separate group from VLANs that are unique to each ASASM.
- Use VLAN IDs 2 to 1000 and from 1025 to 4094.

- Routed ports and WAN ports consume internal VLANs, so it is possible that VLANs in the 1020-1100 range might already be in use.
- You cannot use reserved VLANs.
- You cannot use VLAN 1.
- If you are using ASASM failover within the same switch chassis, do not assign the VLAN(s) that you are reserving for failover and stateful communications to a switch port. However, if you are using failover between chassis, you must include the VLANs in the trunk port between the chassis.
- If you do not add the VLANs to the switch before you assign them to the ASASM, the VLANs are stored in the supervisor engine database and are sent to the ASASM as soon as they are added to the switch.
- You can configure a VLAN in the ASASM configuration before it has been assigned on the switch. Note that when the switch sends the VLAN to the ASASM, the VLAN defaults to be administratively up on the ASASM, regardless of whether the you shut them down in the ASASM configuration. You need to shut them down again in this case.

Examples

The following example shows how to create three firewall VLAN groups: one for each ASA, and one that includes VLANs assigned to both ASAs.

```
Router(config)# firewall vlan-group 50 55-57
Router(config)# firewall vlan-group 51 70-85
Router(config)# firewall vlan-group 52 100
Router(config)# firewall module 5 vlan-group 50,52
Router(config)# firewall module 8 vlan-group 51,52
```

The following is sample output from the **show firewall vlan-group** command:

```
Router# show firewall vlan-group
Group vlans
----- ------
   50 55-57
   51 70-85
   52 100
```

The following is sample output from the **show firewall module** command, which shows all VLAN groups:

```
Router# show firewall module
Module Vlan-groups
  5    50,52
  8    51,52
```

Related Commands

Command	Description
firewall module	Assigns a VLAN group to an ASA.
show firewall vlan-group	Shows the VLAN groups and the VLANs assigned to them.
show module	Shows all installed modules.

service-module session

To gain console access to the ASASM from the switch CLI, enter the **service-module session** command in privileged EXEC mode.

service-module session [**switch** {**1** | **2**}] **slot** *number*

Syntax Description

slot *number*	Specifies the slot number of the ASASM. To view the module slot numbers, enter the **show module** command at the switch prompt.
switch {**1** | **2**}	(Optional) For VSS configurations, specifies the switch number.

Defaults

No default behavior or values.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.2(33)SXJ1	This command was introduced.

Usage Guidelines

Using the **service-module session** command, you create a virtual console connection to the ASASM, with all the benefits and limitations of an actual console connection.

Benefits include:

- The connection is persistent across reloads and does not time out.
- You can stay connected through ASASM reloads and view startup messages.
- You can access ROMMON if the ASASM cannot load the image.

Limitations include:

- The connection is slow (9600 baud).
- You can only have one console connection active at a time.

Note Because of the persistence of the connection, if you do not properly log out of the ASASM, the connection may exist longer than intended. If someone else wants to log in, they will need to kill the existing connection. See the CLI configuration guide for more information.

Examples

The following example shows how to gain console access to an ASASM in slot 3:

```
Router# service-module session slot 3
hostname>
```

Related Commands

Commands	Description
session	Telnets to the ASASM over the backplane.

session

To Telnet from the switch CLI to the ASASM over the backplane, use the **session** command in privileged EXEC mode.

session [**switch** {**1** | **2**}] **slot** *number* **processor 1**

Syntax Description

processor 1	Specifies the processor number, which is always 1.
slot *number*	Specifies the slot number. To view the module slot numbers, enter the **show module** command at the switch prompt.
switch {**1** | **2**}	(Optional) For VSS configurations, specifies the switch number.

Defaults

No default behavior or values.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.2(14)SX	Support for this command was introduced on the Supervisor Engine 720.
12.2(17d)SXB	Support for this command on the Supervisor Engine 2 was extended to Release 12.2(17d)SXB.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

Using the **session** command, you create a Telnet connection to the ASASM.

Benefits include:

- You can have multiple sessions to the ASASM at the same time.
- The Telnet session is a fast connection.

Limitations include:

- The Telnet session is terminated when the ASASM reloads, and can time out.
- You cannot access the ASASM until it completely loads; you cannot access ROMMON.

Note The **session** *slot* **processor 0** command, which is supported on other services modules, is not supported on the ASASM; the ASASM does not have a processor 0.

You are prompted for the login password. Enter the login password to the ASASM. By default, the password is **cisco**.

You access user EXEC mode.

Examples

The following example Telnets to an ASASM in processor 1:

```
Router# session slot number processor 1
hostname passwd: cisco
hostname>
```

Related Commands

Command	Description
service-module session	Obtains console access to the ASASM from the switch CLI.

show diagnostic loopback

To display information related to the PC loopback test, including the number of tests run, the number of loopback packets received, and the number of failures detected, use the **show diagnostics loopback** command in privileged EXEC mode.

show diagnostics loopback

Syntax Description

This command has no arguments or keywords

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	—	•

Command History

Release	Modification
12.2(18)SXF5	This command was introduced.

Usage Guidelines

The **show diagnostics loopback command provides** information related to the PC loopback test, including the number of tests run, the number of loopback packets received, and the number of failures detected.

Examples

The following is sample output from the **show diagnostics loopback** command:

```
hostname# show diagnostics loopback

Port    Test    Pkts-received  Failures
0       447     447            0
1       447     447            0
```

Related Commands

Command	Description
clear diagnostics loopback	Clears the online diagnostic test configuration.
firewall autostate	Enables the autostate feature.

show firewall autostate

To view the setting of the autostate feature, use the **show firewall autostate** command in privileged EXEC mode.

show firewall autostate

Syntax Description

This command has no arguments or keywords.

Defaults

By default, autostate is disabled.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
12.2(18)SXF5	This command was introduced.

Usage Guidelines

Autostate messaging in Cisco IOS software allows the ASA to quickly detect that a switch interface has failed or come up. The switch supervisor sends an autostate message to the ASA when:

- The last interface belonging to a VLAN goes down.
- The first interface belonging to a VLAN comes up.

Related Commands

Command	Description
clear diagnostics loopback	Clears the online diagnostic test configuration.
firewall autostate	Enables the autostate feature.

show firewall module

To view the VLAN groups assigned to each ASA, enter the **show firewall module** command in privileged EXEC mode.

show firewall [**switch** {**1** | **2**}] **module** [*module_number*]

Syntax Description

module_number	(Optional) Specifies the module number. Use the **show module** command to view installed modules and their numbers.
switch {**1** | **2**}	(Optional) For VSS configurations, specifies the switch number.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
12.2(18)SXF5	This command was introduced.

Examples

The following is sample output from the **show firewall module** command, which shows all VLAN groups:

```
Router# show firewall module
Module Vlan-groups
  5    50,52
  8    51,52
```

Related Commands

Command	Description
firewall module	Assigns a VLAN group to an ASA.
firewall vlan-group	Assigns VLANs to a VLAN group.
show firewall module vlan-group	Shows the VLAN groups and the VLANs assigned to them.
show module	Shows all installed modules.

show firewall module state

To view the state of each ASA, enter the **show firewall module state** command in privileged EXEC mode.

show firewall [**switch** {**1** | **2**}] **module** [*module_number*] **state**

Syntax Description

module_number	(Optional) Specifies the module number.
switch {**1** | **2**}	(Optional) For VSS configurations, specifies the switch number.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
12.2(18)SXF5	This command was introduced.

Examples

The following is sample output from the **show firewall module state** command:

```
Router# show firewall module 11 state
Firewall module 11:

Switchport: Enabled
Administrative Mode: trunk
Operational Mode: trunk
Administrative Trunking Encapsulation: dot1q
Operational Trunking Encapsulation: dot1q
Negotiation of Trunking: Off
Access Mode VLAN: 1 (default)
Trunking Native Mode VLAN: 1 (default)
Trunking VLANs Enabled: 3,6,7,20-24,40,59,85,87-89,99-115,150,188-191,200,250,
     501-505,913,972
Pruning VLANs Enabled: 2-1001
Vlans allowed on trunk:
Vlans allowed and active in management domain:
Vlans in spanning tree forwarding state and not pruned:
```

Related Commands

Command	Description
firewall module	Assigns a VLAN group to an ASA.
firewall vlan-group	Assigns VLANs to a VLAN group.
show firewall module vlan-group	Shows the VLAN groups and the VLANs assigned to them.
show module	Shows all installed modules.

show firewall module traffic

To view the traffic flowing through each ASA, enter the **show firewall module traffic** command in privileged EXEC mode.

show firewall [**switch** {**1** | **2**}] **module** [*module_number*] **traffic**

Syntax Description

module_number	(Optional) Specifies the module number.
switch {**1** | **2**}	(Optional) For VSS configurations, specifies the switch number.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
12.2(18)SXF5	This command was introduced.

Examples

The following is sample output from the **show firewall module traffic** command:

```
Router# show firewall module 11 traffic
Firewall module 11:

Specified interface is up line protocol is up (connected)
  Hardware is EtherChannel, address is 0014.1cd5.bef6 (bia 0014.1cd5.bef6)
  MTU 1500 bytes, BW 6000000 Kbit, DLY 10 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Full-duplex, 1000Mb/s, media type is unknown
  input flow-control is on, output flow-control is on
  Members in this channel: Gi11/1 Gi11/2 Gi11/3 Gi11/4 Gi11/5 Gi11/6
  Last input never, output never, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/2000/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/40 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 10000 bits/sec, 17 packets/sec
     8709 packets input, 845553 bytes, 0 no buffer
     Received 745 broadcasts, 0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     18652077 packets output, 1480488712 bytes, 0 underruns
```

```
0 output errors, 0 collisions, 1 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
```

Related Commands

Command	Description
firewall module	Assigns a VLAN group to an ASA.
firewall vlan-group	Assigns VLANs to a VLAN group.
show firewall module vlan-group	Shows the VLAN groups and the VLANs assigned to them.
show module	Shows all installed modules.

show firewall module vlan-group

To view VLAN groups that can be assigned to the ASA, enter the **show firewall module vlan-group** command in privileged EXEC mode.

show firewall [**switch** {**1** | **2**}] **module** [*module_number*] **vlan-group** [*firewall_group*]

Syntax Description

firewall_group	(Optional) Specifies the group ID.
module_number	(Optional) Specifies the module number.
switch {**1** | **2**}	(Optional) For VSS configurations, specifies the switch number.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
12.2(18)SXF5	This command was introduced.

Examples

The following is sample output from the **show firewall module vlan-group** command:

```
Router# show firewall module vlan-group
Group vlans
----- ------
   50 55-57
   51 70-85
   52 100
```

Related Commands

Command	Description
firewall module	Assigns a VLAN group to an ASA.
firewall vlan-group	Creates a group of VLANs.
show module	Shows all installed modules.

show firewall multiple-vlan-interfaces

To show the state of multiple firewall VLAN interfaces for the ASASM, enter the **show firewall multiple-vlan-interfaces** command in privileged EXEC mode.

show firewall multiple-vlan-interfaces

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Command History

Release	Modification
8.5(1)	This command was introduced.

Examples

The following is sample output from the **show firewall multiple-vlan-interfaces** command:

```
Router# show firewall multiple-vlan-interfaces
Multiple firewall vlan interfaces feature is enabled
```

Related Commands

Command	Description
firewall module	Assigns a VLAN group to an ASA.
firewall vlan-group	Creates a group of VLANs.
show module	Shows all installed modules.

show module

To verify that the switch acknowledges the ASASM and has brought it online, use the **show module** command in privileged EXEC mode.

show module [**switch** {**1** | **2**}] [*mod-num* | **all**]

Syntax Description

all	(Optional) Specifies all the modules.
mod_num	(Optional) Specifies the module number.
switch {**1** | **2**}	(Optional) For VSS configurations, specifies the switch number.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	•

Examples

The following is sample output from the **show module** command:

```
Router# show module
Mod Ports Card Type                                  Model              Serial No.
--- ----- -------------------------------------- ------------------ -----------
 2    3  ASA Service Module                      WS-SVC-ASA-SM1     SAD143502E8
 4    3  ASA Service Module                      WS-SVC-ASA-SM1     SAD135101Z9
 5    5  Supervisor Engine 720 10GE (Active)     VS-S720-10G        SAL12426KB1
 6   16  CEF720 16 port 10GE                     WS-X6716-10GE      SAL1442WZD1

Mod MAC addresses                       Hw    Fw           Sw           Status
--- ---------------------------------- ------ ------------ ------------ -------
 2  0022.bdd4.016f to 0022.bdd4.017e   0.201 12.2(2010080 12.2(2010121 Ok
 4  0022.bdd3.f64e to 0022.bdd3.f655   0.109 12.2(2010080 12.2(2010121 PwrDown
 5  0019.e8bb.7b0c to 0019.e8bb.7b13   2.0   8.5(2)       12.2(2010121 Ok
 6  f866.f220.5760 to f866.f220.576f   1.0   12.2(18r)S1  12.2(2010121 Ok

Mod  Sub-Module                  Model              Serial       Hw     Status
---- --------------------------- ------------------ ------------ ------- -------
2/0 ASA Application Processor   SVC-APP-PROC-1     SAD1436015D  0.202  Other
4/0 ASA Application Processor   SVC-APP-INT-1      SAD141002AK  0.106  PwrDown
 5  Policy Feature Card 3       VS-F6K-PFC3C       SAL12437BM2  1.0    Ok
 5  MSFC3 Daughterboard         VS-F6K-MSFC3       SAL12426DE3  1.0    Ok
 6  Distributed Forwarding Card WS-F6700-DFC3C     SAL1443XRDC  1.4    Ok

Base PID:
Mod  Model            Serial No.
---- -----------      ----------
 2 WS-SVC-APP-HW-1    SAD143502E8
```

```
 4 TRIFECTA           SAD135101Z9

Mod  Online Diag Status
---- -------------------
 2  Pass
2/0 Not Applicable
 4  Not Applicable
4/0 Not Applicable
 5  Pass
 6  Pass
```

Related Commands

Command	Description
firewall module	Assigns a VLAN group to an ASA.
firewall vlan-group	Creates a group of VLANs.